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# *Following the Bee Line*

*By*  
JOSEPHINE MORSE



Class 951.1

Book M7

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FOLLOWING THE BEE LINE



*To my father—  
always my wisest guide  
and dearest friend*









*"The air resounds with their song of ecstasy, which is  
different far from their chant of anger."*

—MAETERLINCK

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# FOLLOWING THE BEE LINE

*By*

JOSEPHINE MORSE

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*Drawings by*

MARIE O'HARA



THOMAS S. ROCKWELL COMPANY

CHICAGO

1931

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JOSEPHINE MORSE

*South Lancaster, Massachusetts*



*Home at fall of eve the bees come winging;  
Happy is their flight and happier their  
singing.*

*As the night draws closer and the light grows  
faint,*

*Darker still their air-lines 'cross the skies  
they paint.*

*Peace is all about them; a calm and healing  
peace*

*Fills the heart and fills the mind and brings  
the soul release.*

*Nothing now can trouble, nothing can dis-  
tress,*

*Here, where bees are humming songs of  
happiness.*



*Bees that have honey in their mouths  
have stings in their tails—*

—OLD PROVERB

## I

### MY INTRODUCTION TO A HIVE

I HAVE a friend who says she is “more afraid of a bee than a bull,” and though that seems an exaggerated statement, I find most people consider a sting a serious injury and keep well out of bee-range, if possible. Should a bee buzz on an investigation tour about their ears, they fight it frantically.

Those not familiar with beekeeping are apt to consider a beekeeper an extraordinary being—almost a magician—who charms all bees and is *never* stung. It is a fact that some people seem to rouse the antagonism of even the gentlest bees and others are attacked comparatively little by the most vicious, but the “magic” of it lies mainly in our own temperament or manner of approach.

Bees dislike the proximity of anyone who is nervous in movement or who strikes at them, so it follows naturally that those who are seldom stung are quiet, careful, and unafraid.

But there are no real beekeepers who have *never* been stung. Accidents will happen—and—bing!

But beekeepers do not exaggerate the importance or the pain of stings. We get used to them and usually they are not very painful. It is all a part of the game.

I first became interested in bees when I finished school. I lived on a farm and needed something to occupy my time and my mind, as I planned to be at home and had no heavy home duties to perform. My father was a firm believer in the Gospel of Work, and suggested many occupations, such as pigeons, mushrooms, violets—but none of them appealed to me.

Finally, he said, half-jokingly, “Why don’t you take over George’s bees?”

To his surprise, I answered quickly, “Perhaps I *will!*”

My brother George had two hives of bees, which he had lately discarded for skunks, foxes, and other animal pets. They were down back of the ice-house and that was the extent of my knowledge of them, except that every fall we had honey and hot biscuits after George took off the honey.

Once a year on some chilly autumn evening he used to get my mother to help rig him up, with black mosquito netting shrouding his head, rubber boots on his feet, and long gloves tied securely over

wrists and arms. Then, armed with a little bellows "smoker," which emitted dense volumes of smoke, he would go down to the hives and snatch off the upper store chambers of honey. Sometimes before he beat a hasty retreat with his load, an outraged bee would have somehow burrowed under the protective layers of mosquito netting and the next day the rest of the family would derive entertainment from the sight of a puffy eye or distorted lip. Some years the hives were full of honey; some years not.

I had never been invited or tempted to join him on these marauding expeditions, but perhaps I was attracted to my father's beekeeping proposition by the very mystery, to me, of the bee's life and habits.

I read Langstroth's *Life of the Honey Bee*, that classic in beekeeping literature, and then took a Short Course in Beekeeping at the Massachusetts Agricultural College. The two weeks' course was interesting and practical. At the beginning we examined bee's legs, wings, and stings under the microscope in the laboratory and learned the theory of the profession from lectures in the classroom. To increase our confidence in actual contact with honey bees, we were encouraged to hold drones—the stingless males—in the palms of our hands! Soon we were opening the hives, taking out combs and learn-



ing what was happening inside the hive. . . . The college bees were nice, well-behaved bees and no one was stung.

I went home full of enthusiasm and spurning all accessories sold by bee supply houses for the timid—such as long canvas gloves, leggings, or overalls. Among beginners there is apt to be an attitude of overconfidence, which is a good quality on the whole, though one which needs to be tempered by experience. I did, however, put a black mosquito netting bee-veil over my face when I went down to interview “my” bees.

The whole system of modern beekeeping hinges around frequent inspections of the bees. Not merely by watching them fly in and out their doorway but by taking the roof off their house—like some complacent giant—and lifting out some or all of the detachable combs which hang inside, covered with bees and filled with brood and honey. Some beekeepers “open the hives” once in two weeks, some once in ten days, some as often as once a week. The theory is that bigger honey crops can be secured by this watchfulness; if conditions are not just right they can be remedied.

The beekeeper allows each colony to practice Home Rule. Indeed he is helpless to prevent it, for



*Nothing was more picturesque than a cottage bee-yard with its row of straw "skeps"*





*The long, peanut-shaped cells  
are to serve as royal cradles  
for the young queens*

*Deciding what is inside  
the hive*



he must always modify his manipulations to fall in line with their unchanging age-old instincts. But he benevolently supervises their activities in the dominion which he likes to consider his own, making changes for the best—or the worst, if he is not expert and wise.

There is a Let Alone Method which often works admirably in the hands of a master who knows how to do just the right and requisite thing on the rare occasions when he does *not* let them alone! Undoubtedly it is not the method for the beginner who must learn his “bee behavior” at first hand.

How vividly the picture of that first interview at home is sketched in my memory. A lovely, warm June morning in New England with everything at its freshest and greenest. Flowers blooming in the fields, birds singing in the orchard, and bees humming. . . . Yes, bees humming when I first drew near the hives under the big old oak by the ice-house, where there were few passers-by. I hummed, too, with pleasurable anticipation of an hour or so, such as I had known with the well-mannered insects belonging to the State Agricultural College at Amherst. . . . I remembered how the professor had complimented me on my careful handling of the combs, drawing them out of the hive

so that no bees were pinched or crushed against the other combs. I felt quite self-satisfied and ready to demonstrate my skill again.

I wore a white middy blouse with dark blue serge bands on the cuffs, fastening close at the wrists, and dark stockings with white shoes. I mention this because I learned something through wearing that particular costume which I had not heard in a lecture or read in a beekeeping manual—namely, that bees invariably choose dark, strongly contrasting colors for attack when annoyed.

As I have intimated before, my brother's interest in bees had not been of long duration, and I soon found out that he had been practicing the *Let Alone Method* and was merely a bee-robber—not a bee-keeper! The parts of the hives where the eggs are laid and the most interesting life of the colony takes place had been untouched for several years, and the tops of the frames had been almost completely glued over with wax and a gummy, resinous substance called propolis.

It seemed a well-nigh hopeless job to pry out the combs, and furthermore, the bees were unused to interference and resented intrusion. Their gentle humming had long since changed to a belligerent buzz. Those dark serge cuff bands were the main

objective, and it would have been better if I had rolled up my sleeves. The stings would at least have been more distributed! No wonder I remember that middy blouse, for I found that wrists are particularly sensitive to stings; there seems to be a multiplicity of nerves in that region, and the veins are close to the surface. The dark stockings also received their share of attention. My hands, wrists, and ankles were soon covered with stings and I was forced to close the cover of the first hive before I had taken out more than one of the eight combs. I retreated on the point of tears, with swollen hands and a discouraged spirit, vowing never to go near the bees again.

However, the saying "Once a beekeeper, always a beekeeper," proved true in my case, for in a few days I was again at work, this time well protected and able, with the aid of a hammer and chisel, to inspect the hives thoroughly and regain my proper self-respect.





## II

### FROM OLD TO NEW

**B**EEKEEPING is an ancient art or industry. The Egyptians, four thousand years ago, made long tubes of reed and mud in which to keep their honey bees and out of which they would now and then cut a comb of honey. Present-day beekeeping in Egypt scarcely varies from that of forty centuries ago. But during the last hundred years bees in European and Anglo-Saxon countries have been kept quite differently.

Of course the organization and life of a colony of bees continues the same. But through scientific observation and study we know more about them. We know how to take care of them in order to secure for ourselves more of the precious sweet they store so abundantly.

Sketched briefly, a colony consists of from thirty to seventy thousand bees. Among these there is one—and only one—perfect female, the queen, who lays all the eggs. During the summer months there are about four hundred drones, the males, one of

whom mates with the queen once and then dies. The remaining thousands are undeveloped sterile females, the "workers," who do all the honey gathering and work of the hive.

These bees live in and on their combs which they make of thin delicate beeswax, molded into thousands of six-sided cells to hold both brood and honey. Their food is honey, which the workers suck in the form of nectar from certain flowers, afterwards thickening and changing it into honey.

Every year at least one swarm is cast by the mother colony. The colony is a family which perpetuates itself and the race by sending out its child, the swarm, made up of the queen and about two-thirds of the bees, to find and establish a new home. These swarming bees settle on something—usually a branch—in a clinging pendant mass about their queen. For a time they deliberate, sending out scouts to find a home. Then they depart, with a loud humming to their chosen destination.

The mother colony retains a great many young bees and brood, also several young queens in their wax cells nearly ready to hatch. The first to emerge will kill her royal sisters and in a few days will mate with one of the waiting drones, and will take up her royal duties. Not "The Queen is *dead*; long

live the Queen!" but "The Queen is *gone*; long live the Queen!"

Probably the first beekeepers kept their bees in the hollow logs in which they found them; splitting them open and suffocating the bees inside with sulphur fumes when they wanted some honey. Before long they learned that a swarm issued forth every summer from each normal bee establishment, if they were not disturbed. They learned also that this swarm, or cluster of bees, could be readily captured and put in a box or almost any empty receptacle. Especially were these facts taken advantage of in the wilds; there are still places where bees are kept in "box" hives—or even wash boilers!

In the countryside, however, where peasants had lived for generations, things of this sort were done more neatly and thriftily, and straw "skeps"—usually dome-shaped—were woven of straw to house the bees. A small hole served as an entrance, and the bees built their combs inside in any way they wished. At a certain time each year the "skeps" were placed over a pit of smoking sulphur and "brimstoned;" the bees suffocated so that their keeper might cut out the honey in safety.

There was nothing of its kind more picturesque or poetic, I am sure, than a cottage bee-yard with



its row of straw "skeps" in the flower garden, and an old "bee master," in broad straw hat and long smock, calmly watching the comings and goings of his bees. When a swarm issued forth he would beat a pan underneath them to induce them to alight. And when the master died it was a rash courting of bad luck to omit the ceremony of "telling the bees!"

These old "bee masters" may not have had the same accuracy of information as our modern, up-to-date scientific honey producers, but they often had a rare and delightful philosophy, not so readily induced by the hustling life of those who produce big honey crops. They did not go into the business of rearing queen bees (in fact, at one time the belief prevailed that the ruler of the hive was a *king*!) or sell their honey to middlemen by the ton, but they did know many simple facts fully as well.

They knew that bees are always gently disposed when swarming, and that a big, grape-shaped cluster of swarming bees shaken down off a limb would "march" into the straw "skep" carefully placed below. Their beekeeping methods being so primitive, they did not know how to prevent their bees from swarming to secure more honey; rather, they prized the swarms, which allowed them to kill the parent colony for honey and yet have no fewer hives.

Theirs were the old proverbs:

*A swarm of bees in May  
Is worth a load of hay!*

*A swarm of bees in June  
Is worth a silver spoon!*

*A swarm in July  
Isn't worth a fly!*

They reasoned that the first swarms of the year, in May, were the heaviest; there were more bees then and they worked with greatest zest. A swarm in June was good, but less so than during the month preceding. In July the summer was advanced and time lacking for a colony to make its combs and secure enough honey to carry through the winter.

The ancient custom of beating on tin pans to induce swarming bees—in the air—to alight and form a cluster, has been subject to many scientific jeers during the last twenty-five years. Experts proclaimed it an ignorant, useless custom, and stated that if bees followed the sound and clustered below, it was not because they were attracted by the sound, but because they would naturally have clustered at that precise time and place anyway—an old form of argument!





*"Cottage beekeepers" practiced this method of capturing swarms and were satisfied*

But personally, I have never felt so sure about the foolishness of this old practice. In fact, though the bees may not hear the sound (since it seems doubtful that they possess powers of hearing) I believe that they feel the vibrations and are drawn toward them.

All beekeepers know the effect on bees of jarring or pounding on their hive, and how, if one is driving them from one place to another, the bees tend to move toward the object on which one is pounding. . . . So why might they not feel vibrations when in the air, and be attracted toward the source?

At any rate, the "cottage beekeepers," as we may call them, practiced this method of capturing swarms and were seemingly satisfied with their success.

Straw hives have not been in use in America for many years, except by a few who loved their pictorial effect, but bees have been kept in plain, unpainted boxes in much the same manner.

The greatest discovery, both for its practical and scientific value to beekeepers and bee students, was the movable frame hive. This hive is made much like a box with a detachable cover, but in the interior on opposite sides are two rims from which hang eight or ten wooden frames. In these the bees



build their combs. Each frame, containing its comb, filled with brood and honey and covered with bees, is hung beside another, spaced just one and a half inches from the center of one frame (which inevitably means the center of the comb also) to the center of the next. When the combs are fully built, this leaves a quarter of an inch between the combs, known as a "bee-space;" the distance bees leave when building combs without outside interference.

If the man-made frames were spaced wider apart, bridges of wax would be built across, which would have to be broken out each time the frames were removed—a slow, irksome process.

If the space were narrower, there would not be room for the bees to pass each other and they would build cells so shallow that the bees developing in them would be undersized.

On removing these carefully spaced frames from the hive and examining the combs, the amount of honey and brood, the health and general condition of the colony can all be discerned at a trained glance.

What enlightenment on the industrious life of *Apis Mellifica*, the honey bee, came with the invention of movable frame hives! There is now less guesswork and groping in the dark, and no need whatever for slaughter of the innocents before re-

moving honey, as a comb of honey in its frame can be lifted out readily and the bees brushed or shaken off with little disturbance and seldom a casualty.

With this easy removal of honey and opportunity to diagnose a colony's needs and condition, began the era of commercial honey production.

Since the Reverend Lorenzo Langstroth invented his famous movable frame in 1851, beekeeping has made great strides. Instead of being just a backyard hobby, it is now a full-fledged industry, and thousands of tons of honey are annually shipped in car-load lots from different parts of the country to marketing centers.

Rightly is the venerable old Swiss pastor from Ohio called "The Father of American Beekeeping."

*So work the honey bees;  
Creatures, that by a rule in nature teach the art of order  
to a peopled kingdom.*

—SHAKESPEARE

### III

## INSIDE A HIVE

IT happened that when I began keeping bees there were no old or more experienced beekeepers in my particular locality on whom I could call for help in difficult situations. There was no one to whom I could go as people later came to me.

No one helped me catch swarms, or interpreted for me anything strange in the family life of my bees. I had to learn all that for myself, putting into practice the theories learned from textbooks and the agricultural college short course. Sometimes I burned my fingers in the fire by ignoring what I read of other's experience.

For instance, I had of course read that when the mercury is high and a hive is to be moved from one place to another, a large space should be covered with wire netting at the hive entrance, as bees become agitated when they feel their house moving and rush to the doorway. This doorway, at the base of the hive, is low and, in old box hives, very narrow. If not made larger, the small air passage

will be blocked by bees, pressed against the screening by multitudes behind, and all will smother.

However, I had moved hives a few times, uneventfully, without making the entrance larger; so I disregarded this particular warning, dubbing it something of a quibble.

Then, one sultry August morning, I bought an old "box hive" from a neighboring beekeeper. Like other box hives, there were no frames, and the combs were just fastened across the underside of the top according to the bees' whims. The entrance was only about two inches long by one inch wide, and the owner had fastened a strip of netting across this opening just before daybreak, according to my instructions.

By nine o'clock it was very warm indeed and the bees were clamoring to go out to work.

As I drove off with the hive, their clamor increased. When halfway home I noticed that they had fallen silent. . . . I was glad that they had quieted down. . . . But when I lifted out the hive at home, they were *still* silent. And there was an ominous note in that dead silence.

As I set the hive in place on its stand and tore off the wire netting with trembling fingers, a mat of lifeless bees tumbled out. It was literally a "si-



lence of the dead.” I poked in a stick and only pulled out more dead bees. Heavy-hearted at what I had done, I pried up the box from the bottom board on which it rested. There lay a great lifeless mass. . . . Right then, I knew all the feelings of a murderer . . . though an unintentional one.

Through negligence and lack of forethought I had not been able to prevent a panic. About seventy thousand bees had rushed to their door, trampled on each other, crushed each other, and in the end smothered to death.

I made many mistakes and errors in judgment, but they increased my knowledge and self-reliance, as well as sharpened my judgment by my having to make my own decisions.

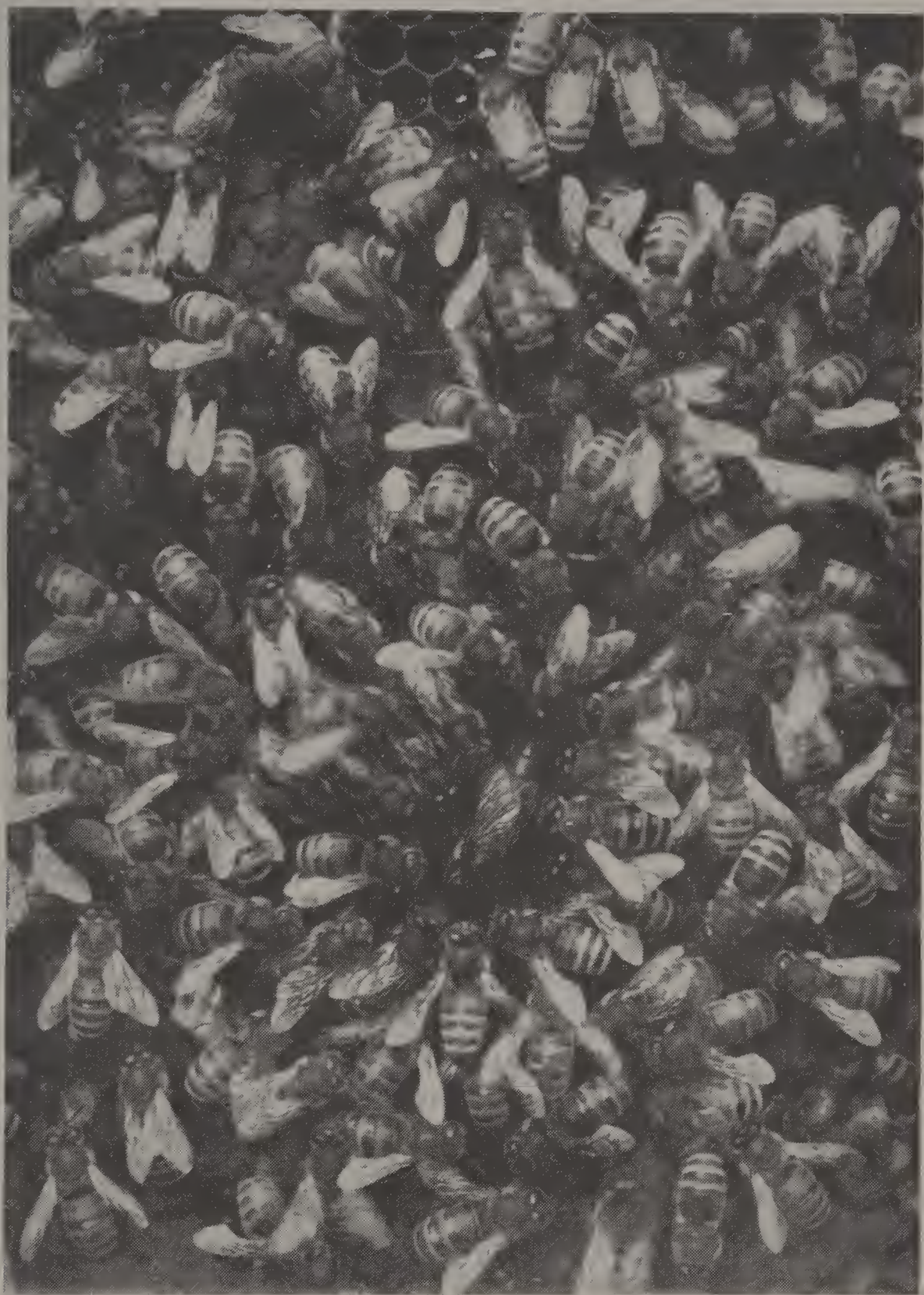
No one told me what was what when I “opened” a hive—that is, took off the cover and lifted out the frames one by one. . . .

In doing this the first item of interest is. . . . Have they a queen? Then, is she laying well? If not, why not? . . . Not yet mated? . . . Too old? . . . Injured? . . . Have they just swarmed or are they just preparing to do so? . . . Are they healthy? Are any of the brood diseased? . . . Are they bringing in much honey? . . . Do they need more room for it?

The old beekeeper's trained eye sees and answers all these questions, often by just taking out two or three combs. If he does not see the queen in a strong colony, where the many thousands of bees often collect in clumps and the queen may be hidden, he does not necessarily jump to the conclusion that there *is* no queen. Instead he tilts the combs letting the light shine into the cells. If he finds eggs in the bottoms of these cells, he knows the queen has surely been there within two or three days at least, since eggs turn into small larvae at the end of that time. He can distinguish between the first intimations of the issuing of a swarm and the "play-spell" of young bees trying out their wings in their first flights. As the youngsters circle and wheel over their hive, marking its precise location in their minds, there is a close similarity to the dartings and circlings of bees just before they swarm.

He knows the queen is a good queen if there are many cells with eggs, and ringed about those cells, others holding pearly white worms, or larvae, curled neatly in the bottom of each. Those cells in turn surrounded by capped or sealed cells that have a thin brown beeswax covering, or capping, which looks indeed somewhat like a little round, slightly puffed cap. Inside, the larvae are eating the "bee-





*A queen (just below the center) surrounded by her  
"ladies-in-waiting"*





*A pleasant, uneventful interview*

bread” provided them in advance by the nurse bees, and, day by day, acquiring wings and legs and changing from worms into insects. Around these brood cells are cells full of honey.

The bees move about over the cells in the combs, busy about their respective duties. Some have brought in nectar from the fields and are storing it and evaporating surplus moisture in the chemical process of changing the raw nectar into honey. This they accomplish by “fanning;” an interesting and amusing sight to see them standing in ranks at the doorway with feet planted firmly apart, heads down, and wings whirring like little electric fans.

Entrance guards, like sentries, also post themselves in the doorway, ready to pounce on strangers who do not have their own special colony smell. They are aggressive in their duties, parading briskly up and down, ever ready to jump out and challenge a suspicious incomer. A strange bee will find it as much as her life is worth to penetrate the outer gates of a full-sized colony. With the highly developed sense of smell possessed by all their kindred, the hive occupants have merely to get a whiff, and with a rush they are on the aliens, biting and pulling wings and legs and threatening with their stings.

On the other hand, the spirit of small weak col-

onies seems to dwindle with their numbers and their guards do not always succeed in repelling robber bees or other intruding insects.

Balls of pollen—red, yellow, orange, or brown, according to the flowers from which it was gathered—are noticeable on the hind legs of some. It will be stored and when needed for food for the young, will be mixed with honey into “bee-bread” according to a recipe which they have not as yet divulged to the beekeeping world. . . . Their babies’ Mellins Food!

There is a never-failing fascination in watching young bees emerge from their cells. When their chrysalis stage is over they make perforations in the roofs, or caps, of their cells and tear and break their way out. Feelers are first seen waving through. A head pushes through and draws back. Again it emerges and slowly, very slowly the rest of the body follows, drawn out with much exertion. . . . A tight fit inside! . . . Now it stretches itself a little. Its wings fold less closely to its body and the child takes its first steps. Lurching, feeble steps, which grow steadily stronger. These feeble, gray, down-covered little creatures are dazed and bewildered on their entrance into a complicated, active world. . . . We can take them in our hands as



carelessly as drones, for although, unlike the drones, they have stings, they have neither strength or inclination to use their weapons. Like all young things they are timid and helpless.

It is they who become nurses to their younger sisters, as yet unhatched, supplying the larvae with bee-bread, sealing them over in their cells with waxen cappings, hovering over them to keep them warm. When the nurses are two or three weeks old, they are deemed mature and take their first flights. Round and round the hive they fly in ever widening circles, locating it unmistakably before they dart off in quest of nectar-laden flowers.

With a puff of smoke as a control measure, we can look into the very heart of the home of these small, extraordinary insects. We can see the easily distinguishable queen, large and regal in figure, moving slowly about with a circle of attendant bees that never turn their backs but from time to time feed her or groom her with their antennae. The scene might be in any royal court, only that in reality the queen is merely being attended and nurtured so she may perform her functions as an egg-laying machine most satisfactorily.

The queen may live to be four or five years old, but rarely does she attain that great age. The egg-

laying powers of the average queen begin to fail during her second year, and her "subjects" show no sentiment but set about supplanting her at once. Queen cells are built, and in sixteen days a young queen supersedes the old. Seldom are two queens found in one hive, although now and again a mother and daughter will be seen laying eggs side by side. Before long, however, the older lady disappears. The manner of her disposal seems uncertain.

Queen rearing is a specialized business. Raised in great numbers, they are sold to beekeepers who make use of artificial supersedure. A queen is caught, caged with attendant workers to look after her, in a small wooden box, and sent out by parcel post. The purchaser "introduces" the caged queen to a hive cautiously. First he kills the colony's old queen, if she is not already gone, then puts the cage containing the new queen in the hive for a couple of days before releasing her, lest the newcomer be "balled" before she acquires the colony odor, or the bees fully realize that they are queenless and in need of an egg-layer.

"Balling" is a strange barbaric practice. The workers form a tight, living ball about the queen until she smothers to death. Inexorably as they remove her, they yet display a reluctance to use physi-

cal violence—a course which might be interpreted as showing an inherent respect for the person of their Hive Mother.

I doubt very much that the old queen is balled by her bees when superseded, though that used to be the theory. More often, I believe, is she killed by the young queen, her daughter, and balling is only practiced by bees under the influence of anger or excitement, particularly toward a newcomer.

When a queen has been “accepted,” we may see her fulfilling her duties under our very eyes, if the bees are quietly disposed and the beekeeper careful. In dignified manner she curves her abdomen into an empty cell and deposits an egg the size of a pin head. There are many thousands of cells and in the height of the season she may lay two thousand eggs a day. Those eggs will develop into larvae and soon the busy workers will put caps over the tops of the cells, while the larvae go through the pupa stage of their twenty-one day development from egg to bee.

Perhaps there is in the hive an empty frame from the middle of whose top hangs a thick, curtain-like mass of bees, all clinging to each other much as they do when swarming. They are making wax.

For this they have another unknown recipe, mak-

ing it somehow within their bodies. After gorging with honey, they gather in the place where they plan to build and the wax appears in very thin scales from several different segments of their abdomens. With mandibles and feet they mold it into the beautiful comb, composed of perfect hexagonal cells. A rib through the center of the comb forms the base from which cells are built on each side facing out and tipped very, very slightly upward to better retain the honey when nectar is coming in with a rush and cells are brimming full.

A honey comb is a marvelous piece of architecture and a thing of great beauty in itself. Most of the cells in a comb are of one size—for the workers—but during the swarming season larger cells will be built, wherever room can be found, for the drones who, being males, are larger and need more room.

Furthermore, if a colony has the swarming fever, they will build queen cells, large, long, peanut-shaped structures, to serve as royal cradles for the young queens.

Wise overproduction of nature! Just as bees store all the honey they are able, so as not to run short (a bee instinct which the honey producer takes advantage of by removing the surplus for himself); just as bees, as a colony, raise many drones (though



only one is necessary to mate with the queen); just so do they, when planning to swarm, build from three to a dozen queen cells. In case of accident to a queen-cell or to the young queen after she has hatched, there will be others to take her place. . . . Nature's prodigality which guarantees survival.

Inspecting the combs in a bee hive is a pleasant and not a hazardous experience. Admitted, there are some persons rough and careless to such a degree that they are totally unfitted to be beekeepers. Such persons jar the hive unnecessarily or pull out a frame so roughly that bees are crushed against the other combs. The bees properly resent such treatment and will make their feelings known. Who can blame them for stinging under such provocation?

The average beekeeper, however, is considerate and gentle. His movements are not jerky. Thus he gets stung comparatively little. When stung, he scrapes out the sting with his finger nail or if stung on one hand and the other hand is not free, he scrapes out the sting with a swift, heavy movement against his—or her—leg.

A bee's sting is forked on the end, with two little poison sacs on the other. When in action, the sting is driven in so forcefully that it is not withdrawn,

but torn out of the bee's body and left in the wound with poison sacs attached. . . . There is a certain satisfaction in knowing that the bee dies soon after stinging.

If the sting is not promptly removed, the smell of formic acid left on one's hand tends to excite and anger the other bees. Yet, if it is grasped and pulled out as one would a thorn, more poison is pressed down through the sting from the poison sacs. When quickly *scraped* out, however, the average sting is negligible.

I myself usually wear a bee-veil of black mosquito netting over my face—just to avoid risks. But if the bees I am to handle are of a gentle strain, I often go without it.

No full-fledged beekeeper ever wears gloves! The best are too clumsy, for the beekeeper must use his fingers precisely and delicately. Who, with gloves on, can catch a queen bee by her wings and cut off one wing to prevent a colony from swarming?

I *have* worn gloves—but only when I especially wanted to keep my hands clean—for bits of wax will stick tight in hot weather and beekeepers' families know full well the feeling of sticky door knobs; a stickiness that may, or may not, mean honey for breakfast the next morning.

*But where was honey ever made with one bee in a hive?*

—THOMAS HOOD

## IV

### TOOLS AND TECHNIQUE

NORTH of our house on the farm we had a lovely grove of trees which my father had planted many years before I began to keep bees. There were many varieties; beautiful white paper birches, a mulberry—whose fruit was shared about equally between the birds, my brothers, and myself—an Italian chestnut, Austrian pine, and English oak, as well as pines, spruces, and poplars.

When I found myself becoming a real professional, I moved my bees to the edge of this grove. A small pigeon house was also transported from below the barn at the foot of the driveway and installed among the trees—to be known thereafter as the Bee House. No bees were ever kept inside, but it served me from then on as workshop and warehouse combined.

The place no longer belongs to my family as the house burned down one spring evening, and the land and other buildings were sold soon after—but I will always remember well the happy working

hours spent in and near my Bee House, and the spot will always seem peculiarly my own.

It was just a small, one-room building with a side door, three windows and two openings high up for the pigeons. Inside, I had a work bench with an odd but adequate collection of tools. Prominent among these were three articles which are almost necessities in a beekeeper's equipment—smoker, hive tool, and bee-veil.

Smokers are little more than tin cans with hinged lids and a bellows attachment which, when squeezed, fans previously ignited material inside the can and sends smoke out of the nose. Burlap or punky wood—anything tending to smoke and smolder—make good fuel. Smokers are useful auxiliaries, and it is the greatest comfort to have one near in time of stress. A quiet puff of smoke blown into the hive entrance and another directed under the cover as it is being pried up, will drive away the guards and send them down into the hive where they will not be crushed or in the way.

A good big colony of sixty thousand bees means a hive full to overflowing. Even though bred of gentle strain, they naturally scurry to see what is going on when the interior of their dwelling is suddenly opened to full daylight. On finding the inter-



ruption a customary one, with no occasion for an immediate offensive, they frequently will make no threatening moves, but they *will* gather in great clumps on top of the frames, making it hard for a beekeeper to find a place for his fingers while drawing out frames, unless he controls the situation with his smoker.

Smoke seems to frighten bees; an instinctive fear, reverting to centuries of experience in the woods when hunters smoked them out of hollow trees and took away their honey. Again instinct teaches them to hurriedly gorge themselves with honey before evacuating their burning home, that they may carry with them in their honey sacs something with which to start anew.

A few light puffs of smoke from a smoker will drive away only those bees near at hand, while the others hardly pause in their customary occupations.

A special "hive tool" is sold for apiary use, but any screw driver or chisel can do the same work. Yet, the regular tool is handier with its strong wedge for prying supers apart and separating frames.

Other equipment stored in the Bee House included extra hives, sheets of wax foundation, queen excluders, bee-escapes, scissors for clipping queens' wings, and so on.

Queen excluders are flat frames made of parallel wire strands with space between each wire allowing worker bees to pass through but not a wide enough passageway for the larger, full-bodied queen. These frames inserted between brood nest and honey chamber are useful in keeping the queen from going above and laying eggs in cells which the honey producer plans to have filled with honey. . . . Danger of a honey consumer getting an unappetizing mouthful of young bee larvae when biting into a section of comb honey is thus eliminated!

Bee-escapes are another, clever, everlastingly useful invention; small flat tin affairs a few inches long, with a hole on the upper side, leading into a pair of delicately adjusted flexible springs tapering to a point, through which a bee can push, coming out on the lower side of the device. Bees will push out but will not push back the other way. They *could* squirm and edge through sideways but they never *do*. Fitted into a slotted board and placed below a super of finished honey, the super will be cleared of bees without the trouble of smoking and driving them out. There are numerous other ways of using the Porter bee-escape, all with the fundamental idea of trapping bees from a place where they are unwanted.

Fine embroidery or manicure scissors are excellent for cutting queens' wings. With one wing cut, a queen bee cannot fly, and as the only times she flies are on her mating flight or when going out with a swarm, this measure tends to control swarming. The swarm may start out, but the queen falls on the alighting board at the entrance and cannot accompany the rest. Therefore since they *must* have her with them, the swarm returns to their hive. . . . Naturally, a queen's wing is not clipped before mating, since she only mates when in flight.

The queen does not sting, so the operator catches her by the wings, and with thumb and finger holds her firmly but delicately on either side of the thorax while he deftly snips off part of one gauzy wing.

Northern apiarists, whose bees have long, cold winters to endure, find it pays to protect them somewhat from icy blasts by "packing" them. I set my hives inside big wooden packing boxes and packed dry leaves or chaff all about them, arranging a tunnel to an outside entrance so they should be free to go out when weather permitted. In the South, packing precautions are less necessary. More important than packing, in North, South, East, and West, is the surety that each colony has plenty of stores to tide them over periods of scarcity.



Various labor-saving devices, invented and presented by other beekeepers, accumulated. On one wall I grouped blue-labeled cards, first premiums won for honey and wax at different fairs; each year it was a matter of pride to add a new one.

Outside, I made a rough bench by the door and put up a trellis for honeysuckle. On one side, close to the house, were planted blue Canterbury Bells, on the east were the hives—two against the house, the rest ranging around in an irregular semicircle facing southeast on an open field, with the little house and trees at the back.

My Honey Room was not in the Bee House but in what had once been a laundry in the Big House—a honey extractor fittingly occupied the most conspicuous position in the room.

In appearance, an extractor can be likened to a large, round tank with a handle connected with gears which turn openwork pockets inside the tank. Combs are slipped into these pockets and whirled round and round. The honey is thrown from the cells by centrifugal force against the sides of the extractor, whence it runs down below and is drawn into pails through a “gate” in the lower part of the extractor.

Combs were brought in from the hives on a



wheelbarrow, and the cell cappings sliced off as thinly as possible with a sharp, hot knife. They were then put in the honey extractor. The crank of my extractor turned by hand—*my* hand. Combs had to be reversed so the honey would be drained out equally from both sides of the combs. Well-emptied, they were removed and placed back in the hives to be filled again, thus saving the bees labor of building new combs. The honey settled in tall cans. While it was settling, glass jars were washed and scalded in the laundry tubs. When they were filled with honey, and labels pasted on their sides, there was nothing left to do but sell them.

A little curving path was soon worn from the back door of the Big House to the little Bee House in what I called "My Domain." It was a sunny, cheerful place with shade in hot weather and always a gentle breeze. I left it wild and natural, as best seemed to suit the locality and my feeling. Pine needles fell undisturbed, and the only landscape gardening I did was to prune off dead branches in early spring or occasionally set out a tree.

One summer the Worcester County Beekeepers Association held their annual summer Field Day under the trees by my Bee House. Forty or fifty beekeepers arrived before noon, carrying their box

lunches and ready for a good get-together time. It was the usual hot, humid Field Day weather in August, and we were all grateful for the shade.

After the "Social Hour," chairs were drawn up and the speaking program began. Halfway through a lecture, the audience suddenly began to prick up its ears, as it were, but *not* to listen more attentively to the speaker. . . . They were listening to another sound—an accustomed one. Unquestioning the source, the audience promptly dispersed to gather about a hive over which a dark cloud of bees was rising, singing their swarming song.

Of course the little imps clustered near the top of a tall Norway spruce by the stone wall. Nothing daunted, two enterprising young men ran down to the barn and brought back an extension ladder which they leaned against the tree and mounted, bringing down about a peck of bees in their basket. After we had hived them and discussed them thoroughly there was not much time left for the speaker. Fortunately he was good-natured and only complimented me on training my bees so well for the occasion!

V

SWARMING AND THE MATING FLIGHT

I DEVOTED most of my time to my bees and to honey production. As there are very few in Massachusetts who do more than keep bees as a “side-line,” my interest became more or less generally known among beekeepers and others in neighboring towns.

On almost any sultry day in July or August I could expect to hear the telephone ring and some strange excited voice on the other end——

“Is this the *bee-woman*?”

“Yes——”

“Well, I have a swarm of bees on my place.”

“Yes?”

“Can you come and get them for me? There must be a *bushel* of them. . . . I never saw so many bees in my life. . . .”

“Where are they?”

“Oh, right up in an apple tree, hanging down from a big branch about eighteen feet up. . . . Do you think they’ll stay till you get here?”

“They may. . . . But you can never tell!  
. . . I’ll come though, anyway!”

An inward groan, as I hung up the receiver, snatched up my bee-veil and my little tin smoker—the beekeeper’s best friend—in which I burned old burlap, giving a cool, thick smoke.

Sometimes the telephone caller would only want to get rid of the bees, and in that case, if I needed more colonies in my apiary, I was always glad to take them.

There are few sights in nature more thrilling than that of a swarm, when twenty or thirty thousand bees burst from their hive and whirl in a dense black cloud through the air, alighting on a limb or a fence post or any convenient “hanging-out” place, till they have fully decided on their future home.

Then is the time to secure them, for the next time they take wing they will go in a straight “bee-line” to their destination, often a mile or so away. To reach them it may be necessary to climb an old apple tree or put a ladder against the side of a barn and mount to the very eaves in order to shake or brush the bees off into a box or pail.

The swarm hangs in a big, warm, cone-shaped mass most wonderful to see and touch. Full of honey and in such a sublime sort of intoxication are





MARIE O'HARA

*One after another they stream into the hive*

they that handling is an easy matter. . . . The beekeeper, if he wishes to create a sensation, may even poke his fingers gently into their midst and detach a handful to show to amazed onlookers.

And now for a very beautiful spectacle! When the big empty hive is ready, the bees are shaken from their receptacle onto a sloping board or a sheet leading up to the hive entrance, and in they "march."

One after another they stream into the hive, the queen carried along by the rush of the others. On, on, on they go, without a look or step backward. . . . Thousands of little figures, like a miniature army, all clad alike in golden-banded uniforms of service. Till at last all are in and a hum goes up from the hive telling that they are happily settled and starting to build comb.

But if the queen should happen to have lost herself in the grass or under the hive, or if she has been injured and unable to accompany the others, they will enter their new domicile reluctantly and move restlessly about inside searching for her, and a distinct cry of discontent and anxiety will be heard.

When the queen is picked up and put inside the hive, their reluctance to enter vanishes and their joy as they rush in to rejoin her is touching.

Now that the swarm is hived and a new com-



munity started, we can leave it and go back to the old mother-hive from which the swarm came forth. . . . Little seems to be going on about the entrance. . . . Few bees fly in and out, and when the cover is lifted off the hive seems comparatively empty.

Nevertheless, examination shows that there are still some bees left in charge and that there are thousands of young bees who will soon emerge from their dark, tight little cells. Also there are half a dozen large, important-looking queen cells capped over with wax.

If one is broken open a young queen will be found inside. She may be just on the point of biting her way out or she may not yet be sufficiently developed to emerge for several days. In the bottom of her cell is a mass of white "royal jelly," a highly concentrated honey food which, with the enlarged cell, has brought about her development, from an ordinary worker-bee egg, into a fertile queen, instead of a worker, or sterile female.

For the queen can lay two kinds of eggs at will—drone eggs or worker eggs. When the workers wish a new queen, they simply make a large cell, transfer a worker egg into it, and supply it bounteously with "royal jelly."

A day or two after the departure of the swarm, a young virgin queen will crawl out of her cell. Her expectant people having gnawed around the top rim, her cell has quite a perfect little lid which she pushes up as if on a hinge.

After five or six days she has gained strength and must soon settle down to her mission in life as an egg-laying machine.

Admirers of Maeterlinck's writings are happily familiar with his study of bee life, entitled *La Vie des Abeilles*. The gifted, mystical poet and philosopher soars, with his queen bee, to great impassioned heights, yet his treatment of the entire subject is complete and scientific.

No one has described the mating of the queen so beautifully as Maeterlinck. He makes of it a veritable ecstasy and truly it seems so.

She always mates on the wing and supposedly her wedding flight and her flight later with the swarm are her only glimpses of daylight. Only once does she need to be mated and she tries her wings and then sails aloft, high into the heavens. Her mate may be a drone from her own hive or one from some hive a mile away, but whoever reaches her must be strong and swift. They mate high up in the sunlit air and then whirl down to earth together. The



drone dies soon after, but the queen returns proudly to her hive to receive the homage of her subjects and to lay the first of the thousands of eggs she will lay during her two or three-year lifetime.

Since the workers live only five or six weeks in the summer, many eggs must be laid so that the numbers of those who die will be replaced.

In the winter the colony does not exactly hibernate but clusters together over the combs, eating honey and keeping warm. Life is so much less strenuous than during the summer's harvesting that the young bees hatched in the fall live through till spring when brood-rearing starts again.

*Apis Mellifica*, "the honey-maker," has been an object of interest to poets, philosophers, historians, and scientists for countless centuries—as far back as records take up.

Many centuries ago, Pliny described the transportation of bees up the River Po: *As soon as the spring food for bees has failed in the valleys near our towns, the hives of bees are put into boats and carried up against the stream of the river in the night, in search of pasturage. The bees go out in the morning in quest of provisions and return regularly to their hives in the boats, with the stores they have collected. This method is continued until the*

*sinking of the boat to a certain depth in the water shows that the hives are sufficiently full, and they are then carried back to their former homes.*

Even earlier, this aquatic form of migratory bee-keeping was pursued in Egypt. Plants bloomed in Upper Egypt six weeks earlier than in Lower Egypt, inducing the beekeepers of the latter region to pack up their tubular mud and reed hives and convey them up the Nile to Upper Egypt, timing their journey so they arrived there just when the flowers were budding. They followed the blooming season on their way back, stopping during the day, moving at night—taking advantage of honey bees' customary return to their hives at nightfall.

John (Jan) Swammerdam, one of the most eminent naturalists of the seventeenth century, was a great bee enthusiast. Born in Amsterdam in 1637, he studied the profession of medicine and took his doctor's degree in 1667. However, he neglected his practice through a passionate devotion to the study of insects, making special researches on the anatomy of bees. He also investigated the metamorphoses of insects, thus laying the foundations for their natural classification. His absorption in these studies greatly distressed his father, who had adequate means and supplied his son with funds—but not for that pur-

pose. Scientific studies of such nature were not then held in high regard, and the father felt ashamed and aggravated that his son's brilliance should be so employed. When he withdrew all financial support, John Swammerdam suffered many privations which injured his physical and mental health.

His great work is *The Book of Nature, or the History of Insects*. The microscope was then in its infancy, and it is doubtful if he ever used more than what we would term magnifying glasses. But his dissections were very delicate, and he puts the breath of life in his discussions and conclusions. The fervor of his enthusiasm and devotion to his "Cause," under the most trying circumstances, are inspiring.

I own a rare and valuable old copy of *The History of Insects*, translated into English from the original Dutch and Latin edition and printed in London in 1758. I never tire re-reading that section of the book entitled: "A Treatise on the History of Bees: or an accurate description of their origin, generation, sex, economy, labors, and use."

According to Swammerdam, the French originated the name of "bee-bread" for pollen. He says: "*The French give with great propriety the name Bees-bread, Pain des Abeiles, to the farina or dusty*



*substance lodged in the antherae of flowers. It is certain that they eat this, and that it is afterwards converted into wax in their stomachs, for they collect vast quantities of it when they have no combs to make, and use it merely as food."*

It is not strange that with his limited facilities for investigation, the great scientist should have entertained the mistaken belief that wax was made from pollen.

The book is illustrated with beautiful copper plates, showing the anatomical structure of the bee. These plates are explained and discoursed upon in the text in very animated, intelligible fashion—with frequent digressions and philosophizings, which reveal the character and spirit of the author.

He wrote in quaintest phraseology, at once naïve and shrewd and he never ceased to marvel at the wonders of Nature.

*"Certainly,"* he says, *"the nature, disposition, and structure of these insects are so surprising that they without ceasing loudly proclaim God's goodness, wisdom, power, and majesty."*

Vergil's Fourth Book of the Georgics treats solely of the care of bees. Dryden's translation of the work is quaint and charming. What a delightful beginning!



*The gifts of heav'n my following song pursues,  
Aerial honey and ambrosial dews.*

The ancients considered honey as the dew of heaven which fell on the flowers and was thence gathered by the bees.

Together with the cottage beekeepers, Vergil believed in the efficacy of the drumming method with swarms. Witness this advice:

*But when thou seest a swarming cloud arise,  
That sweeps aloft and darkens all the skies,  
The motions of their hasty flight attend,  
And know to floods or woods their airy march  
they bend.*

*. . . Then mix with tinkling brass the cymbals  
droning sound—*

*Straight to their ancient cells, recall'd from air,  
The reconciled deserters will repair.*

Furthermore, Vergil, like all others of his time, thought the one regal personage in the hive, a king—  
*Him they extol, they worship him alone.*

*They crowd his levees and support his throne.  
They raise him on their shoulders with a shout  
And when their sovereign's quarrel calls them out,  
His foes to mortal combat they defy,  
And think it honor at his feet to die.*

Having no exact knowledge of the actual happen-

ings inside a hive, the poet was obliged to draw solely on his imagination. He pictures thus the fall of night, according to his own fancy!

*When once in beds their weary limbs they steep,  
No buzzing sounds disturb their golden sleep.*

*. . . 'Tis sacred silence all.*



*He hath a bee in his bonnet lug.*

—SCOTCH SAYING

## VI

### BEEKEEPERS IN STRANGE PLACES

ANYONE who handles bees much cannot fail to be impressed with the intricate and involved form of their life and the simplicity and harmony which nevertheless—and most marvelously—prevails.

I have heard their colony life described bitterly as feminism run amuck, but I think the criticism somewhat harsh, for though the government is in the hands of the females it is well-ordered. All seem happy, and contentment is the rule; save when robber bees, or a careless beekeeper, try to break into the hive, or when in the autumn the drones are killed ruthlessly. But those are exceptional occasions, and the critics, usually cynics and often males, fail to dilate on the unmistakable joy bees take in their work.

The ears of a beekeeper readily distinguish differences in the sounds made by his bees. . . . The steady undisturbed hum . . . the angry, combative zzzzzzzzz which makes the beekeeper in-



instinctively reach for his smoker, knowing that for his own comfort the bees "need a little smoke" . . . the high joyful note of welcome to a queen, if they have long been queenless . . . the loud busy song when there is a great press of work and a corresponding increase of happiness.

Their activities are all directed, as were those of the ancient Romans, for the good of the community, not the individual. Therefore, in the autumn the workers of the colony refuse to allow the drones to live through the winter on the bounty of the hive. Through the summer they have done little but take an occasional flight to get up an appetite. . . . Death would claim them before spring anyway, and a new drone supply will then have to be reared for mating-time. So why should these big lazy fellows continue to sip on sweets they did not help to gather?

To conserve their stores, the greatly preponderating number of workers push the weaponless drones out of the hives, threatening them with their stings—threats which are only a bluff, however, and a bluff which is not "called." Outside, in the cold fall nights, the sensitively organized drones perish. If they try to return, two or three bees will jump on them and pull off a wing or leg. Not pleasant to watch. But is there not some form of cruelty in



every kind of life? And how little, comparatively speaking, disturbs the harmony of the hive!

In the life and achievements of the honey bee, nature's economy and extravagance—purposeful extravagance—can easily be seen.

Economy, in the finely constructed hexagonal cells, whose sides fit together in a way which mathematicians have declared to be the most saving of space which could be devised for a honey comb or any similar structure.

Extravagance, as we have mentioned previously, in the overproduction of drones and queen cells and the storing of honey far above their needs.

Bees are very adaptable. They will build their combs with equal readiness in a hollow tree, in the partitions of a house, in a wash tub, a grocery box, under a rocky ledge (in warm climates), or in a modern, movable-frame Langstroth hive, that has an attendant beekeeper.

At one time, I had to stay out west for a year and a half. Although I was very happy in the West, a year and a half seemed a long time to be away from New England and my bees. No opportunity to see or do anything with bees offered itself. In fact, I hardly saw a bee, except casually on the flowers, until shortly before I took an east-bound train home-

ward. Then within a short period of time I had several interesting bee experiences.

I was wandering lazily one day in Palm Canyon, a strangely beautiful place filled with ancient, lofty palms, near Palm Springs.

Turning up a little-used trail under the shadow of a cliff, I stopped abruptly, arrested by a familiar sound in the air over my head. There was no mistaking it. It was bees! I looked about and traced them by sound to a cleft in the rocks above. Yes, sure enough, there they were, thousands of them, flying in and out, working as only bees work when gathering a great harvest. Their combs were partly distinguishable in the dark crevice.

I had seen bee establishments in many hollow "bee trees," and taken out bees and comb many times, but never before had I seen them living in that sort of place with so little protection and their combs so exposed. It made me realize anew that although it was December it was also Southern California!

I climbed up till my eyes were level with the colony and watched them with a pleasant feeling of familiarity.

They were rather dark hybrids, and from my vantage point, I estimated they had stored away a good deal of honey in their combs from the wild

lavender then in full bloom at the canyon mouth and on the desert. No one had molested them—doubtless fearing detection by the government ranger who sees that no one disobeys the signs warning everyone to refrain from touching or molesting anything “pertaining to canyons” per order of the United States Government.

Mr. Clyne, of Palm Springs, California, is a proficient desert beekeeper who considers the purchase of bees too tame and prosaic. He scouts over the mountain sides and through the canyons near Palm Springs and captures his bees directly from their rocky homes. His apiary is completely stocked in this way.

He found one colony, which seemed unusually active and populous, living in the rocks with a very small entrance hole and no way to see whether or not there was more space out of sight. However, Mr. Clyne shrewdly figured that where so many workers could be seen in such a frenzy of activity, they must be storing their loads of nectar *somewhere*. He decided to find out whether his guess was correct. With a hammer and chisel he proceeded to enlarge the entrance.

“It was a red-hot day in August,” he told me. “I started out with a coat, gloves, hat and bee-veil,



expecting trouble. They were a big, booming lot of bees, but queerly enough they didn't seem to mind me or anything I did—I squatted on a slippery ledge, chipping and knocking away the rock right there where they were streaming in and out. . . . Pretty soon I took off my coat. . . . Then my gloves, then my veil . . . and finally my undershirt! And I didn't put them on again either. The rock was soft—a sort of decomposed granite, and it didn't take long to make an opening big enough for me to crawl partly in. There was a space inside as big as a small closet, almost filled with comb. I got one of my best colonies from that rock, as well as a wash boiler full of the best honey I ever swallowed—and not a sting!”

Guided by a friendly neighbor, I tramped up Eagle Canyon, in the foothills of the Santa Rosa Mountains and found another “canyon colony” there. The canyon was wild and rocky, fulfilling all an easterner's ideas of what a western canyon should be. Jagged, precipitous cliffs of red rock towered above us, with gray-green growth in places, and a chance barrel or cholla cactus lending a fantastic desert note.

At the start we found walking easy along the sand bed where water races down from the moun-



tains after heavy rains. As we mounted higher, the canyon walls drew closer, turning and twisting, and the trail led over rocks and massive boulders.

I had strapped on my belt a hunting knife, of which I was inordinately proud. I never had used it for its original purpose of skinning and bleeding animals, but many times drew it from its sheath for various utilitarian purposes when on a tramp. I equipped myself with it that morning with the idea of cutting out some honey comb. I had a hankering for a taste of "wild honey," so we carried a pan, a big square of mosquito netting, and a package of cigarettes—the two latter articles to serve in place of bee-veil and smoker.

We found the bees in a shallow, easily-reached cavity, but a pile of burnt twigs at the entrance and traces of former combs plainly indicated that some other bee-hunter had been there before us and helped himself to what he could readily scoop out. The bees themselves were gently disposed, a few puffs of cigarette smoke driving them off their front combs back into the narrow recess under the rock. However, although the combs were full of eggs and larvae, they were nearly dry of honey. So I did not fill my pan with wild honey as planned but left the little colony what it had and contented myself with

inserting my knife point far into the center of the combs and with a twist bringing out enough honey—mixed with pollen—for a taste for us both.

Perched on a peaked rock, head and shoulders draped in white mosquito netting, my companion, Mr. Hillery, took several snapshots of me, but of the two, I am sure he presented by far the most intrepid and romantic appearance.

Soon afterwards I left the desert and stayed at “La Solana,” a small but very pleasant hotel in Pasadena. Looking out of my window one hot afternoon, I saw a white-clad figure scrambling over the roof of a garage below.

He stopped and lifted a pole. I squinted out and saw he was scraping off a big swarm of bees from a near-by branch into the basket attached to his pole.

Hurrying out to the scene of action, I found the gentleman was Wong, our Chinese chef. In spite of difficulties of language we managed to understand each other very well. We both were determined to have a good bee talk—regardless. And we did.

By way of boxes and step-ladders, I climbed on other roofs and was surprised to find that Wong had fifteen colonies of bees tucked away in various inconspicuous roof locations.

Another colony swarmed the next day—the

swarm clustering on a small pear tree in the kitchen garden and plastering itself over part of the trunk and about the base of two branches. Not an easy place from which to secure them. Wong was not discouraged, however. He edged his basket-topped pole through the branches and leaned it against the tree with the basket upside down just above the top of the clustered swarm. Very slowly they started to go up into it, Wong tickling their backs with a wisp of grass, attached to the top of another pole, to encourage them on their way. He stood there with the true patience of a Chinaman—poking and pushing them for several hours, till eventually almost all had gone up and clustered in the bottom of the reversed basket. Gently he lowered the basket and poured out the bees into an empty hive awaiting them.

During these proceedings he would at times leave for a few minutes to go back to his kitchen, but he was never flurried. Still, I expected on swarming days to notice a difference in the cooking. . . . Something a little burnt or under-done or heavy. But our meals maintained their high standard of excellence and I more than ever admired Wong's ability to combine the highly specialized occupations of chef and beekeeper.

*And flowers the fairest that may feast the bee.*

—BYRON: LARA

## VII

### MARRIAGE PRIESTS OF THE FLOWERS

BESIDES securing their own food supply, foraging honey bees unconsciously perform a valuable function in fertilizing fruit blooms and other flowers, thus making greater crops of fruit and causing flowers to bear seed and propagate.

Mr. J. E. Crane has called bees the “marriage priests of the flowers.” Flower fertilization is arranged in a very wonderful way and bees often play an important rôle in the drama. Pollen from stamens must penetrate the pistil to the ovule of a flower before it bears seed, and plants which are not self-fertilizing depend on wind or insects for pollination.

Bees may often be seen on flowers, or on the combs, with round balls of bright-colored pollen on their hind legs. For their convenience nature has provided them with “pollen baskets”—a network of interlacing hairs between the leg joints which serve to hold the tightly packed pollen until it can be unloaded at home.



A pretty sight is a sunny field of clover alive with bees moving from blossom to blossom, the sunlight catching glints of iridescence from their wings. Winged straight from their hives they have come, in a direct "bee-line" across fields, hills, and woods. If the field of bloom is large, their loud constant hum becomes a veritable roar. The flowers seem to yield their nectar gladly, as if knowing their winged visitors may also act as fertilizing agents, brushing against their pollen-covered stamens and carrying the yellow dust to other eager members of their family.

As a bee travels about on a pollen or honey collecting expedition, some pollen is inevitably brushed off its legs from one flower to another. So there are many times when the visits of honey bees insure reproduction, and hives are very generally placed in orange groves and apple orchards for the specific purpose of fertilization.

Observation of bees as distributors of pollen is very interesting, but the storing of honey is what most interests honey producers. This, too, requires close observation of flora, for how can a maximum honey crop be secured (no matter whether it be a question of bread and butter or just a matter of "brag"), unless the beekeeper knows what flowers

are going to furnish the nectar and when they are about to bloom?

The blooming period of nectar-producing flowers and their quantity in the vicinity of the apiary must be accurately observed. If all our bees are in one place—and that at home—it may not take us far afield, but we will find that, in covering the territory within a radius of a mile and half of our bees, we will make many interesting discoveries and see many interesting things. Especially is this true if the visits are made at different times throughout the season; this is particularly true if one lives in the country.

We will be astounded in finding that only half a mile from home there can exist a thicket in which we have never before set foot; or a clearing in the woods, or a part of the swamp never before explored—unexplored because they are off the usual path and nothing has been sufficiently strong to draw us to them. A note book in which are jotted down the dates of blooming of different honey plants will be interesting to compare from year to year.

Some years an entirely new nectar source will appear, such as wild carrot (Queen Anne's Lace) which may be entirely nonproductive the next year. Nectar secretion is dependent on certain conditions of atmosphere—temperature and humidity—also

the seasonal conditions of soil and plants which vary so much from one year to the next. I do not pretend to understand the scientific reasons for all the varying conditions in honey plants and their secretion of nectar, but occasionally I like to try to see the real cause and comprehend the natural process in some particular case.

Unless completely motor- and radio-ized, children love to go for a walk through the woods and fields on Sunday afternoons, especially if there is an objective—such as seeing what the bees are working on. And how refreshing and stimulating it is to throw off the cares of farm or house or business and get out in the open country with all the beautiful natural things, where the air is clean and fresh and all is happy and serene! We come back with a different point of view.

Perhaps there is a big blueberry pasture back of the house, from whose blossoms is derived that wonderful, thick, rich honey, dark amber in color, with a reddish tinge, and a buttery, superlative flavor. This will need occasional inspections to see just when it is going to bloom. Blueberry and huckleberry bushes like an acid soil and seem to love the stony New England hillsides where the bushes mingle with those of the sumac. Although the sumac



blooms later, it also furnishes a pleasant honey, light in color and of a rather greenish shade. To my taste, blueberry honey is the honey par excellence of New England. Clover honey producers from Vermont may take exception to this statement, but nevertheless I do not retract it.

Honey varies in color and flavor to a marked degree, according to the flowers from which it came. The most strongly contrasted honeys of which I know are sage honey, very light-colored and very mild in flavor; and buckwheat honey, correspondingly dark—almost black—and strong in taste. Where there are great quantities of certain honey plants in bloom, the resultant honey can be quite correctly called clover or sage or orange bloom, or whatever it may be. However, in many localities the blooming time of different nectar-producing plants overlap and there is a blend of two or more. Usually the flavor of one predominates, but not invariably.

It is all a matter of taste as to which is best. Orange blossom honey is golden and delicious; clover and alfalfa honey are favorites in the Middle West; buckwheat honey has its adherents in New York and Pennsylvania; clethra honey—water-white and tasting as a water lily smells—was Dallas Lore Sharp's best honey in southeastern Massachusetts. In many



parts of the United States golden rod and asters furnish much nectar in the autumn.

Other countries have their famous honeys. Heather honey from Scotland, very, very thick and rather dark, sells at a premium throughout the British Isles. When the Scotch heather shows pinkish-purple, British beekeepers follow in the footsteps of the early Egyptians and Romans—with the exception that their migratory methods are not undertaken on the water. Bee hives are moved by motor truck or cart from England and the Lowlands of Scotland up into the Highlands where the bees revel in the nectar from the purple-covered hills. Honey gatherers, honey sellers, and honey buyers alike gloat over the harvesting of the treasured crop.

A delicious aromatic honey from the wild thyme on Mt. Hymettus in Greece should surely be “food for the gods,” and another of the famed honeys of the world is the “honey of Narbonne,” a honey from wild rosemary in France. Personally, I prefer the wild raspberry honey from northern Michigan to any I have ever tasted. It is thick-bodied and its flavor is superlative.

Since much honey today is extracted from the comb by an extractor which whirls the combs around so fast that the honey is thrown out of the cells, later

to be strained and bottled, it is hardly reasonable to judge honey by color alone. A very little dark-colored honey will darken a large amount of light honey, while the flavor may change comparatively little.

Honey has certain natural crystals, which cause it to crystallize. Some honey will begin to crystallize, or granulate, soon after it is extracted. Grains will form and it will become cloudy and then sugary. When the entire contents of a jar has solidified the consistency is quite changed. Many prefer it in that form, both for taste and ease in handling.

If this granulation is not desired, the honey should not be overheated and the flavor destroyed. However, a jar of honey set in a pan of hot water for several hours will soon be restored to its primary liquid state. In the last analysis it is what pleases the palate that counts.

For that reason many prefer to eat their honey in the comb, instead of in the liquid, extracted form. They say they like to "chew the comb." Then, too, they like the general appearance of the little square section of honeycomb. Unquestionably a honeycomb is a wonderful product and most amazing when we consider that every bit of it was made by small industrious insects out of floral nectar alone.

Master alchemists they are, for they gathered the nectar, changed it into honey, changed the honey into beeswax, molded the beeswax into combs of beautiful hexagonal cells, and gathered more honey for filling these cells. And with more thin flakes of wax, covered over each honey cell to preserve the precious contents from any dirt or deteriorating moisture.

Honey has held an honorable place in history and legend since the days when Hebe served the Gods and Goddesses on Mount Olympus with nectar and ambrosia, or those brave times when ancient barbarians at their feasts quaffed long drafts of honey mead from the skulls of former enemies.

Nectar is *still* fit for Gods and Goddesses and honey mead is still a potent beverage! The quality of honey is unchanged, its quantity has increased. We eat it on waffles in waffle shops or put it in our tea!

Yet the finest honey, thick and clear, is as much of a gastronomical treat as ever, regardless of the practical age in which we live, culling our recipes from Household Departments in the daily papers or from lecturers on Household Economics, instead of from the fair handmaid of Jove.

A little imagination of our own will show ways

to use honey besides on hot biscuits and waffles. I do not care for or advocate its use indiscriminately on and in everything from soup to dessert—but I do know many delicious combinations that can be made. . . . Honey and cream used instead of sugar on morning cereals (grape-nuts, for instance) is especially good. . . . Delicious as a sauce for ice cream, with pecans added. Apples or prunes baked slowly with honey are very rich in flavor.

For general use in the kitchen, it seems more convenient to use bottled honey. A light-colored, delicate-flavored honey will not leave a too cloying taste, killing the natural flavor of whatever it is combined with. An exception can be made when it is put in dark, spicy fruit cakes, for then it matters little, and some even think the stronger the honey the better. European bakers and confectioners have used honey for centuries; cakes keep moist longer, frostings do not get too stiff, when honey is an ingredient. Sandwiches of candied honey are especially adapted for children's picnics, as the honey does not run out and smear clothes, hands, and faces. Moreover children do not have a monopoly on these sandwiches, since they are also very popular with their parents and people of every age at tea time.



Bees follow an amazing course in their careers as chemists, artists, and architects. Using floral nectar as their only building material, they mysteriously produce by intensive secretion of wax glands those fragile flakes of pure white beeswax which they fashion into the thousands of little chambers comprising their homes. Time and use quickly darken the original whiteness of the waxen combs, shading them from deeper and deeper shades of yellow to darker and darker shades of brown. But even when the cells of a honey comb are nearly black, as in some old bee-tree, the honey sealed inside the cells is as clear and clean as when first thickened and stored there. For bees are immaculate housekeepers, scouring out every empty cell till it shines and dragging out wax particles or rubbish of any kind left around inside the hive.

They use propolis, the gummy resinous substance on the buds of evergreen and poplar trees, profusely in their hives, but it is always with an object—to cover rough places, to fill up crevices, or to make their abodes water and weather-proof and secure from enemies. By plugging up much of their entrance with propolis, they can guard it more easily from robber bees who at times of nectar drought hover about, ready to slip into the alien hive and

carry away the stores from a depleted colony below par in numbers.

When all storage room in their combs has been used and honey is still "coming in," honey bees will build a few stray cells here and there in any available space in the hive to serve as extra repositories for the raw nectar which *must* be gathered to the last drop and converted by evaporation and other bee methods into honey. When a beekeeper sees these plain indications of lack of room, he will give them another super, or storage chamber, above the completed one. He will insert in this super a set of frames filled with wax foundation (sheets of pure beeswax which have been pressed between metal mills to look like the base or midrib of a comb with the cell walls on either side cut down). All the bees need do is add more wax to build out the cells and attach the comb securely to the frame. Sheets of foundation are cut just the size to fit in one of the wooden frames first invented by "Father Langstroth." They insure the comb being built where the beekeeper wants it, where it can be moved. They are *not* artificial combs but merely what their name implies, "foundations" of combs.

Odd bits of comb are saved in most apiaries. Melted in boiling water, the beeswax rises to the top



*"The bees pillage the flowers here and there, but they  
make honey of them which is all their own"*

-MONTAIGNE



and can be taken off when cold, like fat on top of soup. To clarify the wax, it must be melted once again and strained through cheesecloth into flaring moulds.

Honey is the main product of an apiary, and beeswax is its most important by-product. Its uses are many, in mills, offices, and homes. Housekeepers know it is the best of floor waxes, dentists use it for "impressions" in bridge and plate work, tailors for waxing their thread. Innumerable are its uses for making molds and impressions of all kinds. . . . A prominent professor of horticulture insists on "real *bees'* beeswax" for grafting trees.

"Sandy" Cairns, a young Scotchman studying for the Roman Catholic priesthood, came to me one summer for three intensive lessons in beekeeping. He came expressly to acquire sufficient working knowledge to take charge of the bees at his Seminary on the Hudson River. We spent three long afternoons working over the hives, while I showed and told him everything I could think of, relating to the subject. I thought perhaps the cramming had been overdone, but he went back to the Seminary an ardent beekeeper and wrote me later that he was supplying the table with honey and making beeswax candles for the altar. He became a missionary in



China and I suppose is now teaching American bee-keeping methods as well as Christianity, to the young Chinese.

The Roman Catholic Church requires the use of two beeswax candles, at least 50 per cent pure, at masses. They burn 100 per cent beeswax candles as well, but not so often, since they are more expensive. Candles burnt at Requiem Masses must be natural, unbleached yellow beeswax, although candles bleached white are allowed at other times. To my way of thinking, wax is more beautiful when left in its varied natural yellow and brown shades.

Home manufacture of beeswax candles is quite simple, if beeswax, old candle molds, and string are at hand. Braided or twisted string, drawn tight through the center of each mold, forms the wicks. Melted beeswax is poured in and taken out when hard, in candle form. There is a little fussiness to the process but also a pleasant gratification to draw out a set of smooth beeswax candles from an old-fashioned candle mold. They are such clear, soft colors, pale or deep in shade; a rest to the eyes after the prevalent riot of Lipstick Reds, Basque Blues, Orange, and so on. Moreover, when burning, a delightfully faint yet pervasive fragrance of beeswax lingers in the air.

*He little dreamt, when he set out,  
Of running such a rig.*

—W. COWPER

## VIII

### JOY RIDING WITH BEES

CALIFORNIA, often called the “beekeepers’ El Dorado,” is one of the greatest honey producing states in the Union. “Big” beekeepers speak of their crops in terms of tons and carload lots. Yet, notwithstanding its almost perpetual sunshine, California is *not* covered with flowers from one year’s end to the next.

The wild flowers in un-irrigated sections of the state burst into bloom after the rains. Then for the rest of the year the land is brown and dry. In irrigated parts it is a different matter.

But California’s largest and best honey crops come from both the irrigated orange ranches and the great unirrigated growth of wild sage in the foothills. Some content themselves with a crop from one source alone; other more enterprising honey producers move their bees to the sage “locations” after the honey flow in the orange groves has ceased. A thousand hives may be moved from fifty to one hundred miles in order that the bees may continue work

on a different flower source and bring more “honey money” into the beekeeper’s pocket.

I read of this method in the bee journals while still a novice at the bee game. But my enthusiasm ran high. Thus when an opportunity came, I determined to try out migratory beekeeping on a small scale.

Early in one August there was very little honey coming into the hives, and bees were idle and, accordingly, cross. I knew of a pond, seven miles away, around which grew great quantities of clethra, or sweet pepper bush, which yields a delicious nectar. So I resolved to move one of my colonies to Spec Pond—and thus resolving, pictured a triumphant return two weeks later with a hive so heavily loaded with delectable honey that two men could barely lift it!

At daybreak, before the bees had begun to fly, I tacked a piece of wire netting over the entrance. But finding the netting not quite long enough, I pushed a little block of wood in at one end and *thought* everything would be all right. . . . I emphasize the word *thought* because I found out that when one is moving bees it pays to *know* that all is secure. . . . I also thought a veil and smoker entirely unnecessary.

My father had not given in to the automobile as early as some; not through dislike of motor vehicles but because he loved horses. So the plan was for me to take a young horse which could cover the seven miles rapidly. We put the hive in the back part of a buggy, and my sister-in-law got in beside me, on her way to catch a train in the village a mile away.

Off we drove gaily, with the hive projecting somewhat at the rear of the carriage. We had not gone far before I noticed that a few bees were following us. I gave them little attention however, thinking that probably I had not closed the hive entrance soon enough and some early risers on coming back from the fields had been unable to get in, as often happens when bees are moved.

My sister-in-law shooed one away, exclaiming, "What makes these bees follow us?"

"Oh, they won't follow long," I answered nonchalantly. "They're just a few stragglers, but we'll soon lose them."

But we didn't lose them and their numbers increased.

"Darn it all," said my sister-in-law profanely, "*You* may like these things, but I *don't*—Let me out!!"



I let her out and as I looked back I saw her running along the road, ducking her head and flinging her arms like flails from side to side.

Without looking at the hive I knew what had happened . . . that little block of wood should have been fastened securely in place. . . . It had shaken out, and now through the narrow opening the bees were streaming, increasingly angry with the joggling of their belongings and themselves.

They stung both me and the horse, a high-strung animal which, though much agitated, behaved like a perfect lady and did not become unmanageable. I had to gallop her to prevent our both being overpowered by the bees as they surged from the hive. In that way some were bound to lose track of us. But plenty found us and hurled their little javelins viciously into the back of my unprotected neck.

The day was warm, and unfortunately I had worn no hat or coat and had not even so much as a pocket handkerchief with me. I wished I could throw the hive out somehow, but that was impossible. To slacken speed was dangerous. . . . So on we galloped. I thought of stories of horses stung to death by bees . . . and my imagination did not stop with that picture only.

Somehow we must get home and unharness and

fly to safety—if possible. . . . But how to turn around in a narrow country road?

We came to a neighbor's circular driveway and around it we swung, at a dead gallop, like Buffalo Bill on the Deadwood coach.

Out of the corner of my eye I could see two dogs jump high in the air, then run and howl.

On we went. A lady approached in her surrey, with a decorous coachman in charge. I composed myself and bowed sedately as we passed—but I did not dare look back!

We drew near our stable and I began shouting to a man outside. He recognized the urgency in my tone, and when I drew rein, he undid the traces on one side of the horse and I the other in record time, and we ran the poor trembling animal into the stable and shut the door behind us.

The bees, left outside in the buggy, raised riot. Men ran in from the garden tearing bees out of their hair. The butcher's boy came jogging along with his feet on the dasher and a cigarette drooping from his lip. In an instant the feet came down, the cigarette fell, and the whip was pulled from its socket and descended on Dobbin's back. They disappeared in a cloud of dust.

Till things quieted down a little I just sat in

the window and watched the show. At last I crawled out and dashed to the house, where I donned a veil, gloves, and bloomers and armed myself with a smoker. Taking the horse's place between the shafts, I ignominiously pulled the buggy back to the bee yard and left it there till the next morning. Then I retreated to the house and crawled into bed.

My father came in with an offer to bathe my neck with alcohol, which I gratefully accepted. While doing this, he scraped thirty-three stings from a space two inches square on the back of my neck. I had other stings, too, but that was the region where the forces of the enemy had concentrated.

But lest the casual reader get an erroneous impression from this or any subsequent incident described, and think that such experiences are of common occurrence, I must explain that this was a most unusual adventure and not typical of the usual pleasant, unexciting life of a beekeeper. In conversation there is a tendency to emphasize the exceptional. So in writing, I have not dwelt on the thousands of uneventful interviews with my bees which form in my memory a background full of serenity.

However, at the time of my "joy ride," I forgot the background and was only conscious of the virulent effect of many bee-stings.

I felt a lively and sympathetic understanding of a recent experience of a friend, Mr. G. A. True. He had volunteered to help me during a short period of time with the occasional heavy lifting of hives in my work. I had accepted his offer with some hesitation as I knew the psychological effect of gratuitous stings on "outsiders." I did not wish our friendship impaired.

The inevitable happened—but not, I am glad to say, the breaking of friendship—later he sent me the following verse which explains what occurred. Not written after the style of the Italian poet or of Dryden, but nevertheless very apt!

THE TERRIFIED MAN—TO THE TERRIFYING BEE  
*I know you're just a little bee, and oh so very gentle.  
But when you're near, sometimes you'll hear words  
not used in a temple.  
If you want to hear pure English used, in poetry or  
prose,  
Just make a social call and drop upon some fellows'  
nose.  
And when his tears have ceased to flow, and his nose  
has ceased to swell,  
You'll hear him say in a casual way, "I wish you  
ere in—well—your bee hive!"*



*So great is their love of flowers  
and pride in producing honey.*

—VERGIL: GEORGICS

## IX

### TEMPERAMENTS

TO THE person uninterested in bees any bee on a flower is “a honey bee,” whereas it may truly be anything from a bumblebee to one of the little light-bodied wild bees, which closely resemble flies. A visit to the Natural History Museum in New York City will show that there are thousands of kinds of bees, all labeled and listed there in numerous glass cases.

*Apis Mellifica* is the Latin name of our honey bee, and the best known races of this genus are the Italians, the Germans (commonly called “blacks”) and the Carniolans. These three races have been most widely kept and studied.

Considered from every standpoint the Italians are the most satisfactory. Good honey gatherers and easy to handle, one might almost call them the “standard” bee of America. They are also considered more resistant than other races to the diseases which sometimes attack the brood, and are very attractive bees in appearance—the workers having

yellow-banded bodies, and the queens often being beautiful golden blondes.

There is ordinarily no pleasure in keeping "black" bees, for, although often splendid honey gatherers, they and the hybrids resulting from a cross between blacks and Italians, are too vicious for comfort in handling.

Some time ago, Carniolan bees were called "ladies' bees," but that term has lately fallen into disuse, since *ladies* have become *women* and come into their own!

Carniolans, however, are very gentle and a beautiful silvery gray; they are industrious, but their great drawback is a tiresome propensity to swarm. In that they overindulge—from a beekeeper's standpoint—one colony often sending out swarm after swarm right through the summer. The result is much trouble for their keeper. He must choose between attempting to discourage this impulse by cutting out queen cells from the combs every week or devoting much of his time to capturing swarms. . . . And why does a swarm so often choose to cluster on the topmost branches of an old apple tree?

As different races have their general characteristics, so do different strains of a race each have their

points of difference. One strain of Italians, for instance, are especially good honey-gatherers; another may be very quiet and not easily disturbed. Another strain of the same race may raise quantities of brood but gather very little honey. Such qualities are transmitted from the bees of one queen to her descendants.

Furthermore, each individual colony of a strain is a unit. The whole colony of forty to seventy thousand bees share similar temperaments and habits and can be considered precisely as one individual.

During my experience I have answered numerous calls to transfer bees from buildings or trees, and have seldom refused such an undertaking if the colony was in a reasonably accessible place.

Among these experiences I reckon as memorable the taking of a very powerful and very vicious colony of black bees out from under the eaves above a wooden dormer window of a big summer boarding-house in Shirley, Massachusetts. The house, known locally as the "Old Brick Tavern," is a fine old building; in earlier times well known as a road-house and described at length by William Dean Howells in his novel *An Undiscovered Country*.

The bees had lived there for many years and were

of the most undiluted vicious strain that I ever encountered. A year previously somebody had attempted to get them out but had not gone farther than to rip off the boards of the ceiling, directly above the window, and right below the colony. They had not been put back, and consequently the colony had elongated its combs until they hung down about eight inches into the room in front of the window. As nobody dared cut off these combs and nail the board back in place, the room could not be used and the door had to be kept carefully closed.

Even though the proprietor seldom dared enter the room, he took a proprietary interest in his insect lodgers and had become inoculated with the bee-keeping fever. He wanted not only to have the use of an extra room but to have the bees on the ground in a modern hive and to be a beekeeper himself. So I accepted his request and, with him as an assistant, started to extricate the bees and combs.

But, smoke them from below and rap the boards above as I might, I could not get them to stir off from their combs—it being so much harder to drive bees down than up. Therefore the combs had to be cut out as they were, with all the bees on them.



Moreover, to add to the difficulties, they were in an awkward place to get at—the tops of the combs too high up inside the eaves to reach with a knife unless I stood on a box. Also, the combs were very large and hard to handle, even when cut in two parts. They were about twenty-eight inches long by twenty inches deep, and heavy with honey, which dripped or gushed down upon my face at almost every cut of the knife, for even with the aid of a flashlight to penetrate the dark recess, it was blind work. Also, from the start, the bees resented intrusion. They concentrated on stinging and infuriated bees can push and pry somehow through almost any covering.

Before long, the proprietor said he had some business downstairs he must attend to . . . if I didn't mind? I understood.

At the end of five hours steady work, all the combs were out and I had fitted ten frames with good worker comb containing brood and honey, cutting the combs to fit the frames, then pressing them in and tying them in place with light string till the bees should fasten them more securely with wax. But the queen had not been found, and the bees all clustered in the cavity.

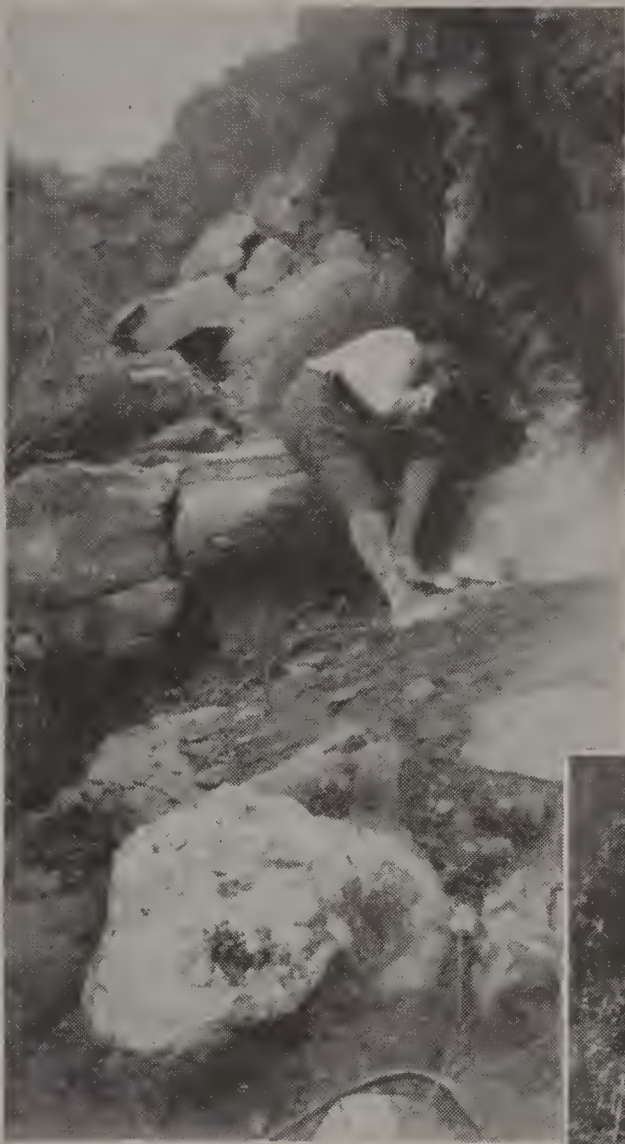
I took out as many as I could with a small sugar

scoop and poured them into a hive, hoping the queen was among them. Then moved the hive forward on a small table directly under the cluster, supposing the bees left above would slowly join their brood below.

It wasn't absolutely satisfactory but it was getting late and I suddenly felt very sick and faint from the effects of the stings and the heat of the little room right under the roof. So I stepped out in the hallway and looked about. The place seemed deserted, although I could hear talking and laughing below.

Pushing my bee veil back off my face, I staggered to an open doorway which proved to be the entrance to a delightfully cool, dark bathroom. . . . It seemed like Paradise! I stretched myself out full length on the linoleum and relaxed completely. . . . A glass of water would have made me even happier. . . . After a few minutes, quick steps sounded on the stair and a young girl burst in. She rushed to the washstand in a tearing hurry for a drink of water, and looked neither to right nor left—or she would have almost stepped on me.

"Would you mind handing me a glass, too?" I asked feebly, utterly unconscious of my position or appearance.



*I traced them by sound to a  
cleft in the rocks above*



*Wong stood there, poking  
and pushing them for sev-  
eral hours*



*Transferring a colony  
from an old-fashioned  
box-hive to a modern  
one*



*And perhaps a stool  
under a tree where one  
can cool off and rumi-  
nate*





She jumped, gave me one glance, screamed at the top of her lungs, and dashed away out of sight and sound. . . . She did not come back, and I lay there, feeling miserable again and disgusted with mankind's (or *woman-kind's*) heartlessness.

However, before very long, my horizontal position, combined with the cool freshness of the room produced a reviving effect and I knew I felt better because I began to laugh and view the scene with the eyes of the frightened boarder, not my own—

Who *wouldn't* scream and run if they went in a room and found a strange woman dressed in an old smock covered with honey stains, and a black veil nearly enshrouding her head, lying prone on the floor, with a devilish looking tin utensil beside her, emitting a steady stream of smoke . . . ?

What could that poor, innocent child be expected to know of bees and *bee-women* and their habits!

Finally I roused myself and departed from the scene of action, praying to hear next morning that the bees had all united in the hive and could be moved away. Also, I felt entirely out of conceit with the bee business and determined to give up such enterprises in the future.

However, the next morning came and with it word that there were practically no bees in the hive,

all having deserted and joined the cluster above, where their queen undoubtedly was hiding.

In spite of weakness and weariness, my blood was up! I tackled the job again. And in the tackling, did a very foolish thing—one of those things most beekeepers don't tell!

After scooping down the bees and thoroughly exciting them, I opened the window wide to relieve the oppressive heat in the little room. Soon I became conscious that they were all on the wing and swarming out through the window. Too late to close it!

They clustered on the limb of a tall elm in a large, indignant bunch, high, high up above the big, three-story house.

Hadn't I better give it up, suggested the owner . . . ? *No!*

To reach them we lashed another ladder to the top of an extension ladder and after a perilous-seeming climb, got the bees in a box and quickly covered it with mosquito netting, so they would not take wing again. And—oh joy! the queen, a little black old lady, was with them. . . . All was well!

The following day the hive was moved and the boards nailed up, preventing access to any more undesirable tenants. We killed the old black queen

and introduced a new Italian with the natural result that in little over a month's time the temper of the colony had changed to a very marked degree, as the old bees died and the progeny of the gentle Italian took their places.

I felt an inordinate pride in that big, strong colony and still have a very god-motherly feeling when I see it.

A less troublesome experience was that of removing bees living in a partition under the eaves of a little Swedenborgian church. The wardens feared lest the bees penetrate somehow into the main part of the church and some devout lady worshiper literally "have a bee in her bonnet!"

They stipulated that if I took out the bees, no boards should be removed or the building injured in any way. This made it necessary for me to erect a scaffolding as high as the bees' entrance. On this I placed a hive with a comb of brood and a caged queen, at the same time inserting a trap in the old entrance alongside the "hive" entrance. This trap allowed the bees to come out but prevented their return, and so induced them to accept philosophically the next best thing—the hive close by waiting for them with a queen "'n everything."

The queen was liberated in a few days but the





hive remained on its scaffolding for three weeks during which time almost all the "Church" brood had hatched and entered the adjoining hive. The trap was then taken out and the bees, no longer interested in their former homesite as such, entered and robbed all their own honey and stored it in their new home.

I had a fine new colony for my apiary and the building was unmarred.

Later I heard that the mouths of the church wardens began to water for the honey supposedly left in the church after the bees had been taken.

They hired a carpenter to open up the partitions carefully. . . . But "when they got there, the cupboard was bare!"

The combs were duly found—but *empty*!





. . . oh! yet  
Stands the church clock at 10 to 3  
And is there honey still for tea?

—RUPERT BROOKE

## X

### WOMEN BEEKEEPERS

IN THE ranks of the beekeeping world women are decidedly in the minority.

Is there any special reason this should be so?  
. . . Why do not more women keep bees? Because they *will not* or because they *cannot*? . . .  
Is it advisable for them to try?

Answering the last question first—I see no reason why an ordinarily healthy, intelligent woman should *not* follow this pursuit. Nearly always, if it appeals to a woman, she is as well suited by nature as by inclination.

I cannot believe women are too *nervous* to handle bees, for I feel sure that there are just as many nervous men as nervous women in this world. It may be that women have indulged themselves in their nervousness and sometimes, I fear, have even “traded on” their reputation for nerves in difficult situations. But some of the best beekeepers are highly strung, although they have themselves well under control, especially when doing bee work.

However, if a woman contemplates going into the business on a large scale, there is one consideration of weight. Presuming she does not care to be just a "back lot-er" or "side line-er" but is ambitious to be a commercial honey producer, she must expect plenty of heavy lifting. For, unless there are many heavy supers of honey to lift off, one is not successful! If she has strong arms and back and lungs, she can probably take care of her business alone, doing the lifting and everything else connected with it.

Of course, if the woman in question can always have a willing husband, or male helper of other denomination, hovering within call, she is fortunate and need not hesitate about entering the field on that score.

Furthermore, there are hard and easy, right and wrong, ways of using one's muscles when lifting heavy weights. I was once advised by a noted orthopedic specialist to watch piano movers at work and notice what muscles they used. They took much of the weight with their bent legs, thus markedly lessening chest and abdominal strain. It was a profitable demonstration to me, as it would be to any woman beekeeper not of Amazonian physique. Short, strong backs also have the advantage over long ones in an occupation where there is much lift-

ing and bending—as nurses discovered in France during the World War!

Thus it can readily be seen that if beekeeping is to be a paying proposition, it will not be merely a poetic pastime, though the poetry will always be there. But there will be a great deal of pleasant work—much of it outdoors. Much bending over hives, drawing out the combs one after another, scrutinizing them intently. Much hoisting up of supers, weighing from twenty to sixty-five pounds, from off the tops of full hives to the ground. Nor can they be swung off and slammed down roughly since they are full of bees—and each bee well armed.

Indoors there will be the turning of the extractor, unless again there is some other arm power available, or unless one is financially able to have the extractor crank turned by electricity.

Much must depend on circumstances and conditions. . . . Whether an apiary of two or three colonies or two or three thousand is contemplated! As to the tending of two or three colonies, I can imagine nothing more delightful for any woman, even if she should be a semi-invalid. Someone could always be found once in a couple of weeks to help for an hour or so—or a hive-lifting device could be used.

For mental diversion, what can equal study of the honey bee's habits? It is mentally impossible to open a bee hive and think of anything else. The organized life in these busy commonwealths is something one can watch and ponder over endlessly. The more one learns what is going on, the more one wants to learn. There is something also in the nature of a beekeeper's work which is very fascinating; his continual study of the meaning of it all; his need for niceness of perception and penetration.

He is like a doctor, holding the patient's hand, while studying his face and making his diagnosis. Or perhaps he might better be likened to a statesman, feeling the pulse of a nation and attempting to direct its policies.

At one time I had twenty colonies of which I took the entire care; in addition, extracting the honey, bottling, and marketing it. Nearly every day I would have to open and go through several hives. My proceedings became in time somewhat automatic and business-like. First, a rapid, comprehensive survey, followed by some form of practical manipulation. But even in the midst of work, every once in a while I would have to pause, for the wonder of it would sweep over me again.

So, if the woman beekeeper is worried over some-





*If the woman beekeeper is worried over something,  
let her take her worries to the bees*

thing, let her take her worries to the bees. They will take care of them just as well as she. Furthermore, they will give her something else to worry about—of such a different nature that it will be a change and relaxation to her mind. She will have to forget her own problems and those of her neighbors when the bees are swarming or she is hunting for the queen!

The preponderance of the male sex among beekeepers may be because beekeeping is a branch of agriculture; not distinctly a woman's line, and only undertaken by individuals here and there. Moreover, it seems that women generally *must* classify the bee as a most particularly undesirable acquaintance. The industry simply does not attract women into its ranks in any considerable number. So much more the pity, from the standpoint of one who has not only known its many disappointments but also its many more joys.

Yet, though their numbers be comparatively few, there are some very fine, able women beekeepers; owners of a few hives kept for enjoyment and pin money; and real apiarists with apiaries of many hundred colonies.

In several large apiaries in this country, women take charge of all the work connected with queen



rearing. They put artificial queen cell cups in certain big, thriving colonies and induce the bees to build cells on these cell bases. Worker eggs are removed from other cells with a toothpick or special instrument and placed, one in each cup, on a bed of "royal jelly."

This procedure calls for a delicate precision of touch and results must be followed closely by a person well posted on bee habits. The queen cells are cut out when nearly ready to hatch and distributed to colonies needing new queens. Expense of buying queens from commercial queen breeders by parcel post, is thus saved and especially good blood can be perpetuated.

Women often assist in preparation of honey for market. If the honey is in the comb, the small box containers—"sections"—must be cleaned and the honey graded properly before being wrapped in attractive cellophane covers.

Cellophane, being transparent, also tough, makes an admirable wrapper for comb honey. It is a joy to both the grocer and housewife. No longer will honey leak out on grocery shelves. No more will it serve as bait for flies, ants, or the thumbs of small greedy boys.

Bottling honey and labeling jars is another

woman's job; they frequently are more interested than men in having their handiwork present an attractive appearance. As bees have an instinct to swarm and gather honey, so women have an instinct to make things about them attractive. Bee-keeping is only another field of opportunity where they may practice.

An additional motive is that pleasure is given friends and visitors if the apiary has some personality—with flowers and perhaps a stool under a tree where one can sit and cool off and ruminate.

The honey room will be spotlessly clean with a certain amount of order—honey labels will be neat and attractive. A honey exhibit may be prepared for agricultural fairs or flower shows with a great chance to work out something effective.

There are also many delightful ways of making honey candy for gifts, or the extra money, ever acceptable to a woman of small income.

After much experimentation, I evolved a way to coat small, square chunks of comb honey with chocolate, making a form of candy which met with approval at Christmas time. The process was simple, yet painstaking. The honey had to be sliced with the keenest possible thin-bladed knife, heated. Clean cutting and a hot blade were imperative to avoid



breaking down the delicate cells in the honey comb. After being dipped in chocolate and then cooling, a little patching frequently had to be done, since honey will ooze through the tiniest of air holes.

So many avenues of interest are opened to the bee-keeping student of either sex. First:—entomology . . . then, the study of botany . . . weather influences on bees and floral nectar secretion . . . carpentry, through nailing together “knocked-down” hives . . . mechanics in learning the gears of the extractor and the working principle of steam-heated uncapping knives, etc. . . . general observation of Nature by “lining” bees to trees in field or wood . . . psychology in marketing honey . . . not to mention the culture of those undramatic virtues of patience and perseverance.

Financial success may come, or there may be drawbacks which prevent its achievement. But who can reckon happiness in terms of dollars and cents? As Dallas Lore Sharp once said, “Joy is Life’s best yield,” and regardless of the balance in the bank, great satisfaction and contentment of spirit always come to those who work in harmony with their bees.

*But bees on flowers alighting cease their hum.*

—THOMAS MOORE

## XI

### ODDS AND ENDS

IT MAY be worth while to take up a little time and space in answering some questions which are often asked. And no matter how many repetitions there may be of such questions, they are far preferable to the mere query of “How are the *bees*?”

Some questions and comments are as if all cast in the same mold—as regular and uniform as factory-made parts of the ubiquitous Ford automobile.

A deadly question—“How are the *bees*?”—For how, when there are from thirty to seventy thousand bees in a colony and each colony has its own strong individuality and difference in condition, how can I answer except in a general way, with a false show of enthusiasm:

“Fine—making lots of honey!”

Usually flat silence follows. Both are grateful when a new topic is begun.

Sometimes this form of questioning is merely a greeting—with no attention paid to the answer and no wish for further information—a sort of identifi-

cation of me with my bees. Or it may be just a polite acknowledgment of interest in a rather peculiar occupation. Occasionally it is a pathetic and uninspired attempt to "draw me out"—an attempt doomed to failure. In such a case, the next remark is quite likely to be:

"Don't they ever sting you?"

This question is put to me literally thousands of times, as often from men and women of real intellect as from the unthinking. I suppose it is what people generally associate with a bee—a sting. And I feel sure it is always asked with a hope that the answer may be, "Never," thus stamping me as something unusual, with some strange charm, where bees are concerned.

If I answer honestly, "Oh, yes, I get stung sometimes, but it doesn't amount to anything," they snort half incredulously.

Then, "What do you do for the stings?"

Patiently, "Nothing. There isn't anything that really does much good."

This is the real way most real beekeepers feel, but I strongly suspect it is not quite satisfactory to the layman. And often the latter seems to forget the answers from one meeting to the next.

Many people, however, ask questions which show

real interest in the subject. . . . They wonder, for instance, what bees do in the winter when there are no flowers, and how they can endure the cold of northern winters. On considering the long spells of bitterly cold weather, when for weeks the mercury stays in the neighborhood of zero, it is remarkable that a colony of bees can remain alive in its thin wooden-walled hive, often with no protection whatever in the form of packing or wrapping, against the elements.

But we must realize that there are many thousands of bees, and Government experiments demonstrate that when the temperature goes below 57 degrees the bees cling together in masses between the combs. By eating honey and going through various gymnastics with wings and legs, they can raise the temperature within their cluster; now and again they change places, those more quiescent on the inside moving out to take up the activities of those on the outside.

Their hive entrances are always left open as bees need, every now and then, to take what is called a "cleansing flight" to prevent dysentery. These flights are only taken in the middle of an unusually warm sunny day.

In this manner do the bees pass the winter in





*The comb may be black as ebony—but the honey will be clear*



*The bee-hunter with his spoils from the tree-hive*



northern climates after Jack Frost has nipped the flowers. In warmer regions they are not so closely hive-bound, but nearly everywhere there is a quiescent season.

At agricultural fairs I have heard countless exclamations on seeing a comb covered with bees shut in a glass case for exhibition:

“Oh—see the bees making honey!”

But they do not stop to think, for if the bees are shut in a case without any outlet, how can they make honey, without any flower nectar to make it from?

Another wrong impression gains ground from the natural granulation of honey in the jar. Actually, crystallization or granulation of honey is a sure proof of its purity. The different natural sugars in honey are bound to form crystals, in time—sometimes soon—sometimes not for many weeks. The honey gradually thickens or “sugars” till it is quite thick and white and solid. But in the process an impression is often given that it is adulterated with sugar and is just “turning back to sugar again.”

I have also known people to say, “Oh, I don’t like that honey they have at the store. It’s tasteless! Just sugar syrup.”

As it happened, the honey in question was some

neutral blend, with sage predominating, and the displeased customer had been used to dark strong buckwheat honey. And those used to light honeys may believe that dark honey contains molasses!

Are beekeepers immune to poisoning from bee stings? Somewhat, if they work constantly with bees and are "tapped" fairly often. More frequently, I think, supposed immunity consists in quick removal of stings before the formic acid has had sufficient time to get into the system. Another factor, I feel sure, is a certain professional habit of "forgetting" stings. Anything unpleasant seems worse when dwelt upon; thus it is far better to consider stings as one would minor cuts or bruises.

Certain types of rheumatism are helped by the formic acid from bee stings; other types show no improvement. So beekeepers, through their occupation, have no *guarantee* against lumbago!

How far do bees fly when gathering honey? Generally not more than a mile and a half, although they have been known to travel three or four miles when near-by nectar was scarce. I have known several such cases, authentic beyond a doubt.

Then there is the often-heard: "I love honey but I don't dare eat it because it's so much more fattening than sugar!"



Is that true? No, honey is not a whit more fattening than sugar and is much more easy to digest, since the bees have saved us one step in the process of digestion. It is an *invert* sugar, and contains many vitamins which ordinary sugar lacks.

In an old house once inhabited by Shakers—that group of practical mystics, who are fast disappearing through lack of recruits—my attention was once attracted to a relic. It was an old card, on the order of a modern placard or poster, advertising their honey. A slender clover blossom was drawn on each side of the card and between was the following lettering in graceful, painstaking script:

*From soul of Flowers  
To sweeten the soul of Man.*



*So do you bees make your honey, but not for yourselves.*

—VERGIL: LINES IN BATHYLLUS

## XII

### HUNTING BEES

NO SPORT is quite like that of “lining” bees—pursuing the honey bee to her home in the wilds.

A commercial beekeeper, unless a real naturalist, is apt to acquire just sufficient practical knowledge with which to work successfully and use it mechanically in his beekeeping manipulations—his attitude being somewhat that of a superior being who guides the activities of his laborers, using them as tools for his own purposes.

But a bee-hunter sees the honey bee working out her own destiny and though he may capture her and her colony he has had a glimpse into her free and natural mode of life and must marvel anew at her adaptability.

James Fenimore Cooper wrote a story called *Oak Openings*. The scene is laid in Michigan on the shores of the Kalamazoo River just before the War of 1812, when there was much unsettled territory traversed only by Indians, hunters, and traders.

The central figure in the novel is the bee-hunter,

called by the French "voyageurs" of the region, "le Bourdon" (the drone), because he "lived off the labors of others." This assumption was not entirely accurate, however, for although he lived on the sweets produced by others, he really had to work as industriously as any worker bee to find the hoards of honey and secure them. This in fact was his sole occupation, and he found it profitable.

He lived alone in a shanty securely built to withstand the frequent attempts bears made to break in and steal during his absence; honey being bears' favorite food, which they can scent from afar.

All through the summer from July to October he "lined" bees and stored their honey in his shanty, taking it away later in his canoe and selling it to the people living in the settlements along the river, who waited until his arrival to stock up their winter supplies of sweets.

The opening chapters of the book describe his method of hunting bees, a method similar in essentials to that of the present day. He caught each bee separately in a glass tumbler, which he then set over a small piece of comb, whose cells were half-filled with clear, thin honey. Then he put his cap over the tumbler. As soon as darkness surrounded the bee, it naturally ceased fretting to get out into the



light, then discovered the honeycomb and started feeding.

When it was completely engrossed in its feast, "le Bourdon" removed the cap and before long the liberated bee, having had its fill, rose in the air. At this point the hunter's object was to note keenly the larger and larger circles against the sky-line made by the bee as it located the position of this delightful source of honey and then made its final straight dart for home. After this line was accurately determined, the hunter made a cross-line or angle by going a hundred yards or so further on, either to the right or left, getting the point of intersection of the bee's line of flight and thus the location of the bee-tree.

Aided by his calling, le Bourdon extricated himself from a very serious predicament with hostile Indians. He so impressed them with his supposed power over the bees that their attitude changed from one of distrust and hostility to awe and respect for this paleface medicine-man.

The bee-hunter accomplished this by taking up the bees just as they were ready to take their homeward flight. Holding them to his ear, he pretended they told him where they were going. The Indian's keen eyes saw the bees circle, but practice had not



enabled them to see further and get the exact beeline. They were also mystified by his covering the tumbler with his cap, doubtless considering that a further proof of necromancy.

In a paper published in London in 1720 it is stated that all the bees in New England were originally brought in hives from England. The paper is entitled: *An Account of a New Method in New England for Discovering Where the Bees Hive in the Woods, in Order to Get Their Honey.* By Mr. Dudley. *Philosophical Transactions Royal Society A. D. 1720.*

He says "The first planters in New England never observed a bee in the woods till many years after the country was settled. But what proves it beyond dispute is that the Aborigines (Indians) have no word in their language for a bee, as they have for all animals whatever proper to, or aboriginally of the country; and therefore for many years called a bee by the name of Englishman's fly."

Nowadays there are probably few throughout the length and breadth of the land whose sole occupation and source of income is bee-hunting. But there are still a great many bee-hunters left—particularly in the more remote and rural districts of New England among those inhabitants of real Yankee ancestry,

who are sharp of eye, shrewd of wit and, as Mr. E. H. Vaughan, veteran bee-hunter of Worcester, Massachusetts, expresses it, "who would rather hunt bees than eat when they are hungry."

Every bee-hunter has his own idea of the box which he takes with him for hunting bees, and feels firmly convinced of its superiority to all others. My box is three by five inches and about four inches deep, made with a top and bottom section. The bottom part holds the comb, and the top part is used to catch the bee. The top section has a glass cover with a wooden slide at the bottom and when put over the flower on which a bee is working, the slide is pushed in gently below while the flower is pulled out at the same time without injuring or liberating the bee. When the bee is captured, the upper compartment containing it is placed right over the lower part and a flat piece of wood is held over the glass top to darken the interior, so that when the slide is drawn out, the bee will go below to feed. When the bee's attention is fully absorbed, the upper part can be lifted off again so the bee can leave when ready.

This box is not my own invention, but was made for me by another enthusiast. Perhaps that is why I am not at all dependent on it and would really





*"Seeing only what is fair,  
Sipping only what is sweet,  
Thou dost mock at fate and care."*

—EMERSON



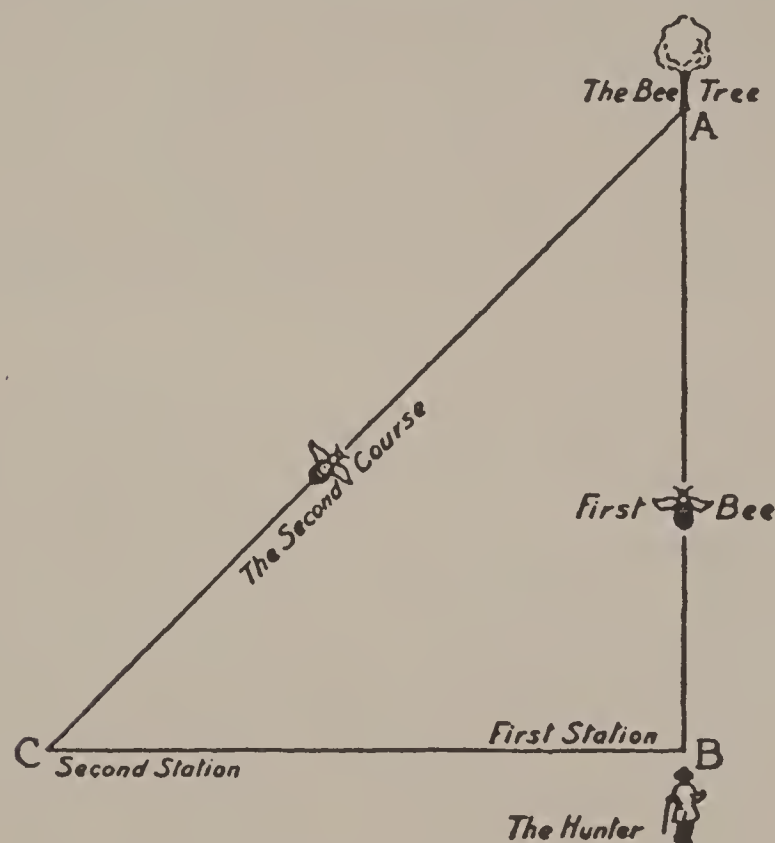
just as soon go out as simply equipped as "le Bourdon"—with a box and piece of glass to put over it, or a tumbler (and cap!) with which to catch the bees and some honey comb as bait.

The best "set-up" for the box is where one can get a clear, unobstructed view in all directions, or at least where the immediate surroundings are in the open. One bee is caught at a time and introduced to the honeycomb, which should be placed on a fence post, stone wall, or boulder—something a few feet up from the ground so that the overhead circling and departure of the bees may be watched with least discomfort of position. Several can be started at the same time if they are caught quickly.

Mr. Vaughan always emphasizes the point of making a strong initial line, thus getting the bee-line firmly fixed and easy to follow. Also, if time runs short, it will be an easy matter to "pick up the line" the next day, or even several days later, as the bees will be on the lookout and will be making frequent visits to the spot where they secured such a delightful and unexpected "free lunch." It is really the robbing instinct in bees of which the bee-hunter takes advantage, exposing sweets for their temptation and encouraging them to partake. They get in the same

furor of excitement as they would if robbing a weak colony or an abandoned hive.

The time elapsing between the bee's departure and return is to be noticed; an absence of fifteen minutes generally indicating that the bee tree is one



*Diagram illustrating the two stations,  
the "lining" of the two courses flown  
and the location of the bee tree*

mile away. If lines are made in more than one direction, a little colored chalk mixed with water can be dabbed on the bee's thorax between the wings to distinguish the different bees and confirm just how long each took to go and come back. If a

cross-line is made, the point of its intersection with the first or initial line will be the place where the bees live. For, as Mr. Vaughan says, "They never tell lies or make false moves."

He adds, "When the colony is located, carve your initials distinctly into the bark on the tree trunk. If some bee-hunter has found the colony and marked the tree before you find it, it is courtesy among bee-hunters to place your initials below those already upon the tree, if you are not vexed—and you should not be."

I have taken bees and honey from bee trees, but I have never yet cut down a bee tree. They are apt to be large and need to be felled by an expert.

My first bee tree was an old spreading chestnut. I had marked it as my own, but when I stood beside it, ax in hand, its girth daunted me. So my brother George—who successfully undertakes almost anything from clipping a lion's nails to addressing formidable audiences in Chatauqua tents—came to my rescue.

Most respectfully and admiringly I watched my stalwart woodsman-brother cut into the trunk with quick, sure strokes. Down crashed the tree, and regardless of reassuring lore on the subject, I could hardly believe that clouds of wildly infuriated bees



would not rise instantaneously in the air like a vengeful army of demons. I confess we more-than-half crouched behind protecting bushes, on the alert for danger signals. But nothing terrifying happened!

In accordance with tradition, the tree dwellers seemed stunned by the catastrophe. The jar of the falling tree frightened and demoralized them. They were excited, racing about or standing still, heads down and bodies elevated, fanning vigorously with their wings, as if to work off the agitation in that way, but they were not aggressive. So little so, that soon I discarded my veil, even while the tree was being split open near the bees' entrance hole and the combs exposed to view.

After driving them with puffs of smoke into a box, combs were cut out, and the best, most perfect ones fitted into frames and put into an empty hive near-by. Into the hive were also dumped the bees. The process took very much longer than the description—as it is a long, sticky job. Still by doing it bees, brood, and honey were all saved.

Early autumn is the preferable season for bee-hunting; the temperature then is comfortable, most of the honey is sealed, and if all has been well, a colony of bees has more honey in the autumn than in the early summer. The best "wild honey" is

unsurpassed, due to the long ripening, thickening, and mellowing in the warmth of the colony. The comb itself may be as black as ebony, but the honey will be as clear as when first put in and of superb quality and flavor.

Hunting territory should be chosen in which there are no domesticated bees within a radius of a mile and a half, as it takes away some of the fun to spend the greater part of a day (as I have done twice) in successfully lining bees to someone's hive!

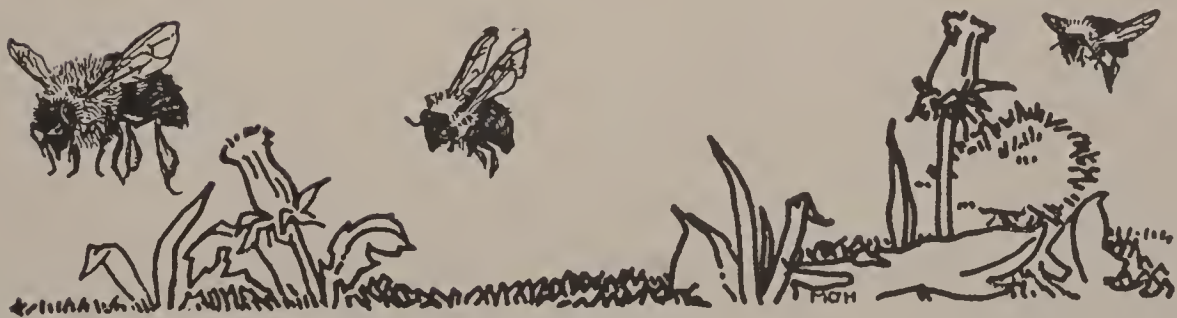
The best way to do is to set aside one full day for a bee-hunt. Let nothing interfere. Plan to go off alone or with some kindred spirit who takes the same delight in the same kind of things you do—and do not tell anyone else where you are going. New territory is always more interesting to work on, and in New England there is a joy in winding along little-used country roads through rural regions quiet and undisturbed by the complexities of modern town and city life.

A day to loll about on the grass between periods of concentrated activity. A day to leisurely appreciate the full beauties of the countryside, while breathing in long breaths of fragrant air and basking in mellow sunshine.

Much of the pleasure of a bee-hunting expedition

lies in the relaxation of it. There is no hurry and no worry as one sits in the sun by a fence post with head tilted back and eyes following the widening circles of a bee, marking its location before the final straight, swift homeward dart. The line may not be discerned on the first bee's departure, but it does not matter. There is plenty of time and other bees will come and in their turn go.

Then there is one's lunch to be eaten in the shade of some grand old pasture oak and—of *course*—before nightfall a bee tree to be found and marked.









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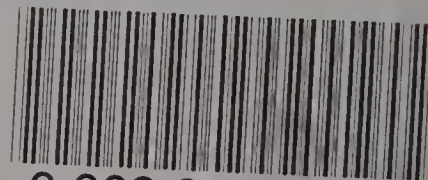
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